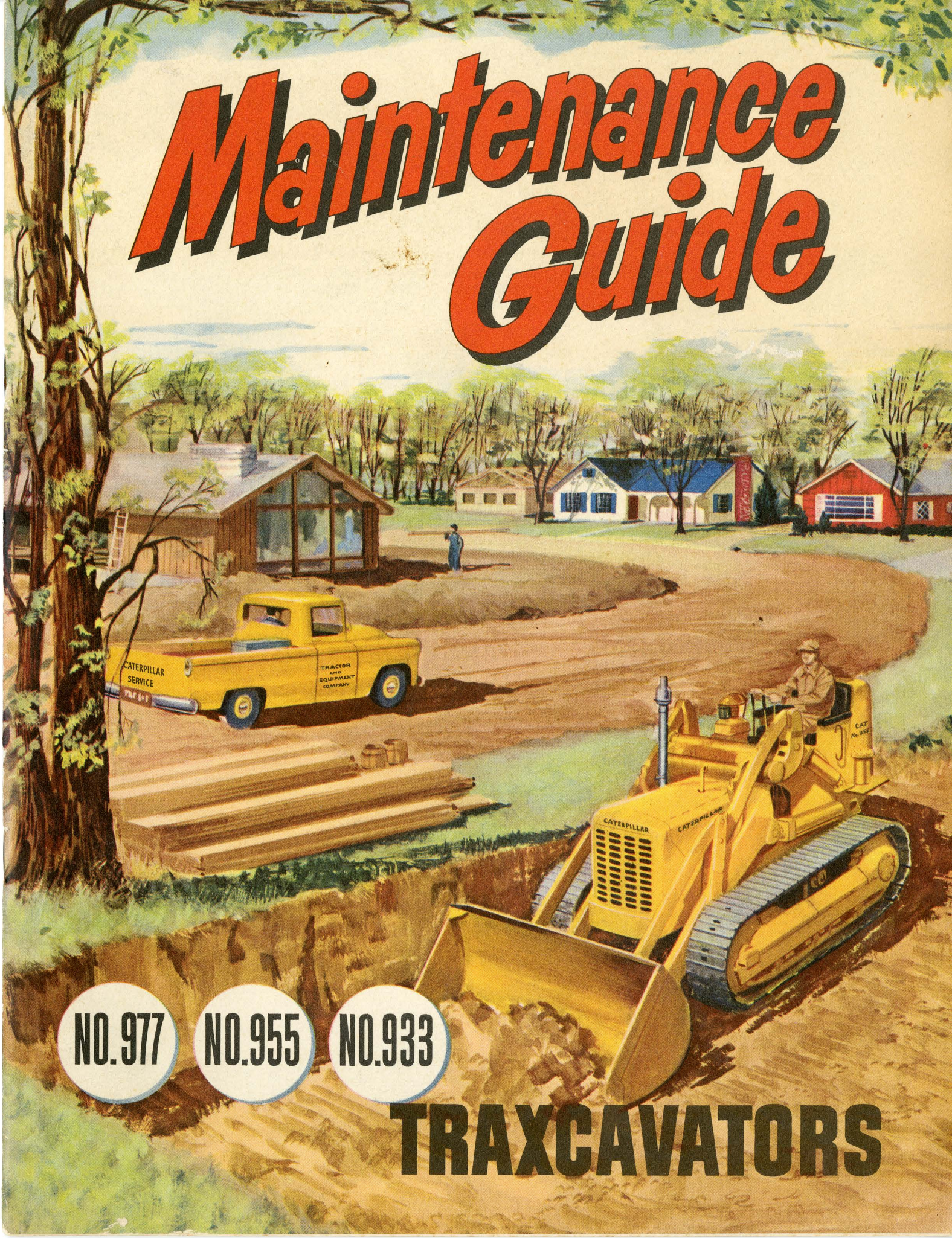
Maintenance Guide



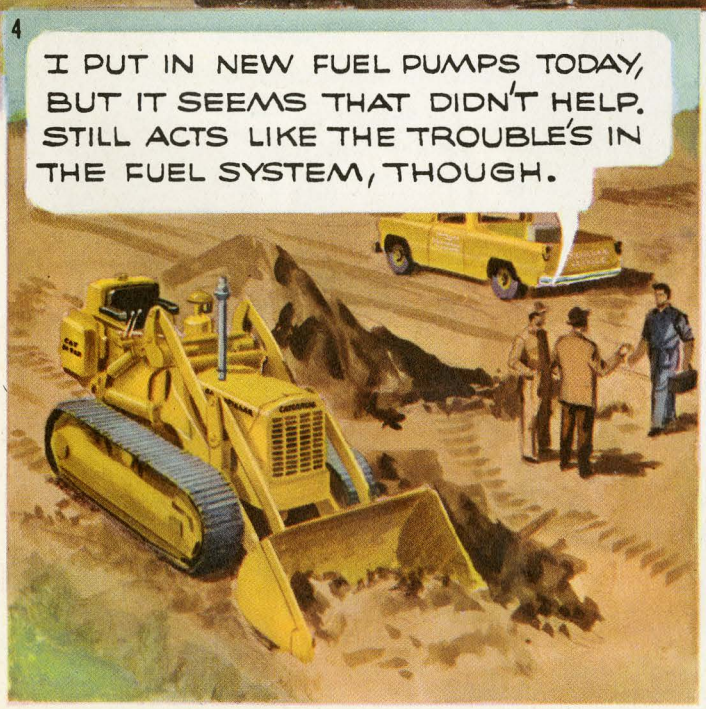
NO. 977 NO. 955 NO. 933

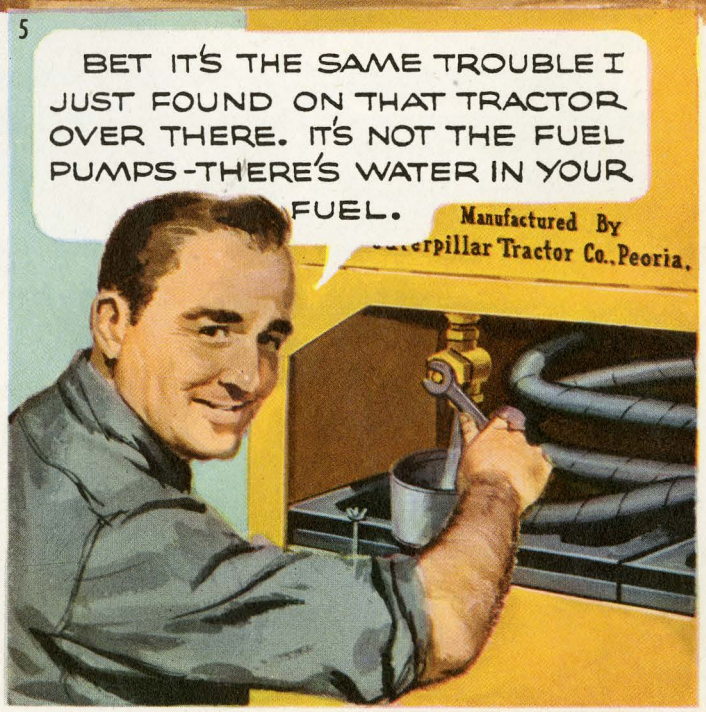
TRAXCAVATORS

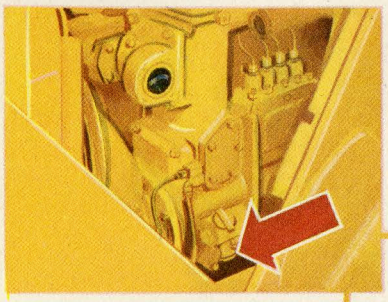
Maintenance

Guide...

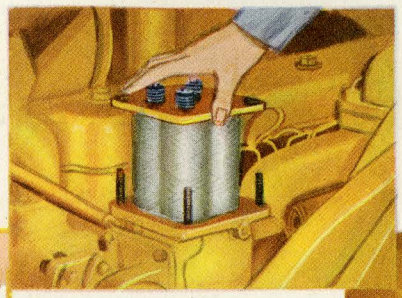
NO. 977 NO. 955 NO. 933 TRAXCAVATORS



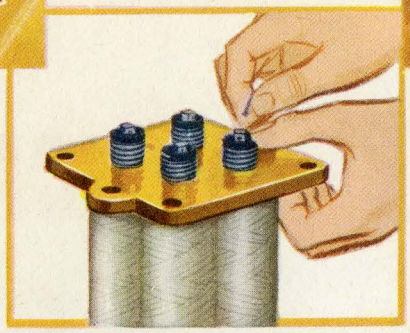




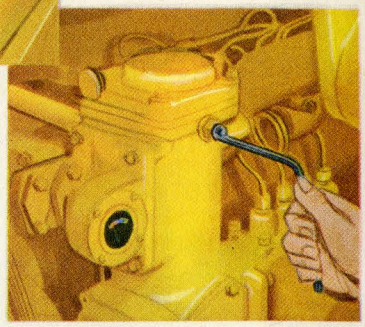
6 Drain water from the fuel tank, and drain water and sediment which settles to the bottom of the fuel filter housing.



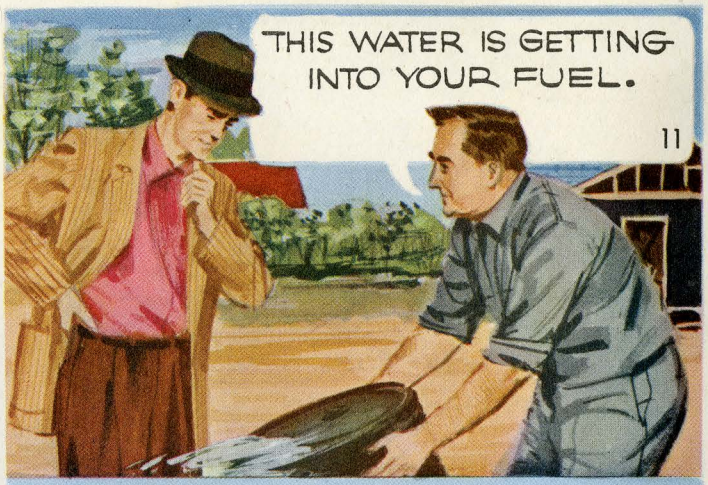
7 Replace the filter elements.



8 Water in the filter housing causes filter elements to become soggy and swollen—thus restricting the flow of fuel.



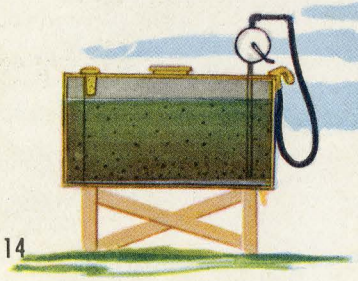
9 When the fuel supply is broken or air is in the line, the fuel system must be primed.



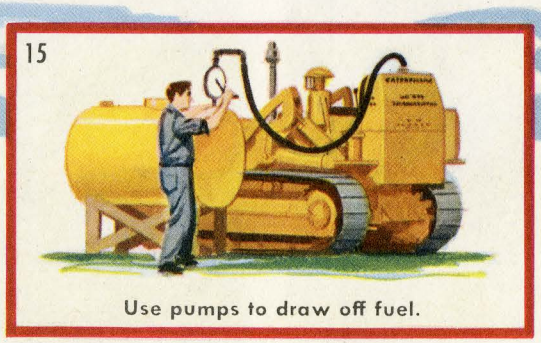
Keep fuel clean. The best fuels become unsatisfactory through careless handling or poor storage. It is practically impossible to keep cans, funnels and drums clean. Use good storage tanks and fuel handling practices. Here's the best way to handle fuel.

12 Drain off sediment and water before refilling.

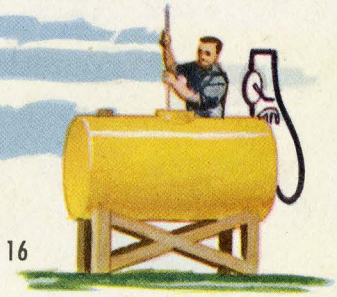
13 Fill tank from oil truck hose.



14 To settle out contaminants, let fuel stand 24 hours.



15 Use pumps to draw off fuel.

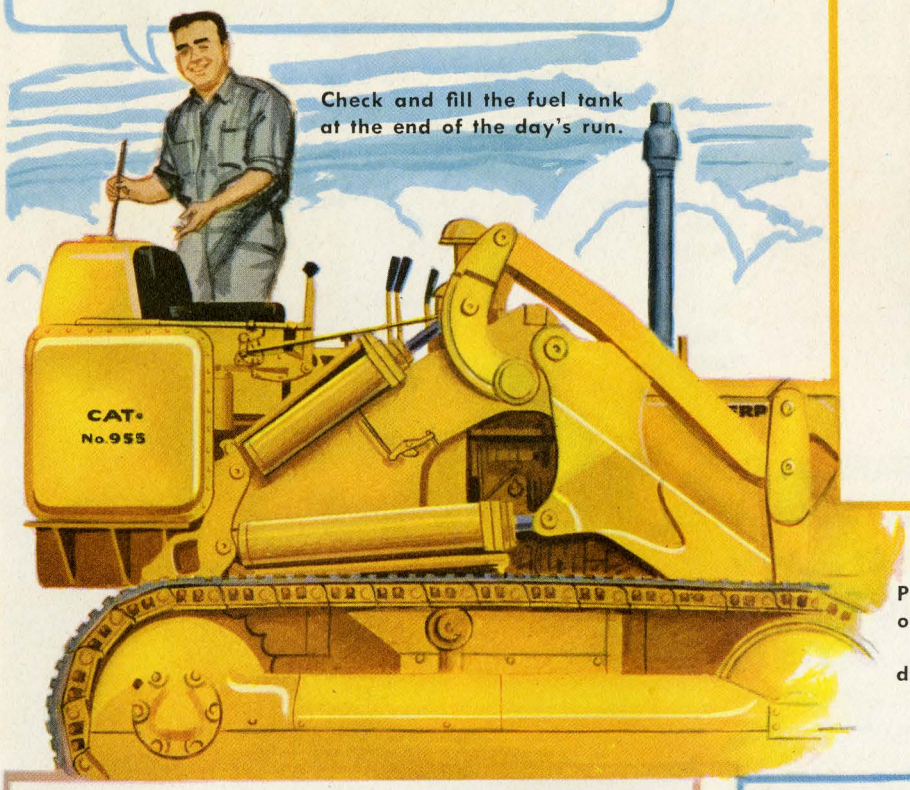


16 Clean the tank occasionally.

17

THE FUEL TANK ON YOUR TRAXCAVATOR NEEDS ATTENTION, TOO.

Check and fill the fuel tank at the end of the day's run.



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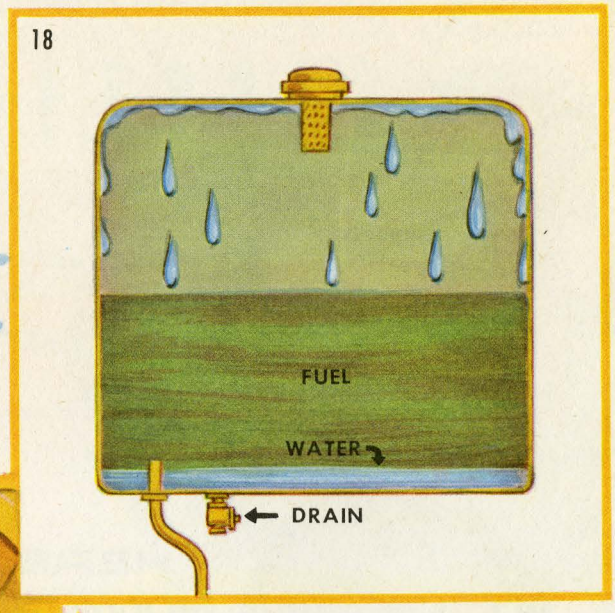


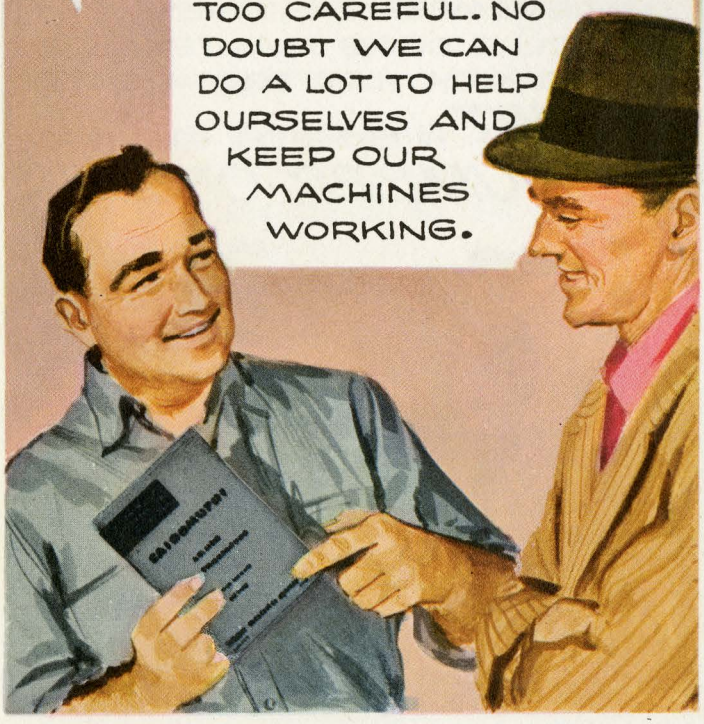
Partially filled tanks sweat—moisture collects on the inside and drops into the fuel.

Every 125 hours before starting the diesel drain off the sediment and water.

19

CONSULT YOUR OPERATION AND MAINTENANCE INSTRUCTIONS FOR COMPLETE MAINTENANCE DETAILS.

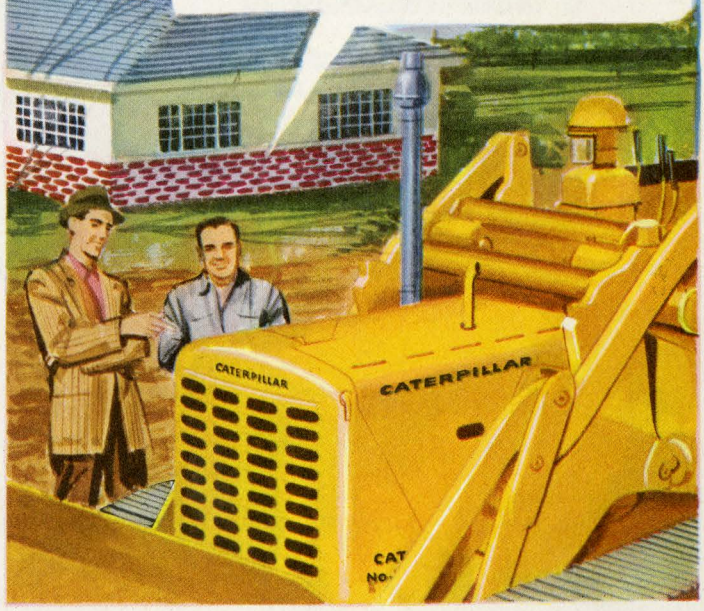
I SEE WE HAVEN'T BEEN TOO CAREFUL. NO DOUBT WE CAN DO A LOT TO HELP OURSELVES AND KEEP OUR MACHINES WORKING.



20

CAN YOU GIVE US SOME MORE INFORMATION ON TRAXCAVATOR CARE?

YES, I'M HERE TO HELP KEEP YOUR EQUIPMENT OPERATING PROPERLY. LET'S SEE IF WE CAN LEARN A LITTLE MORE ABOUT CARING FOR IT.



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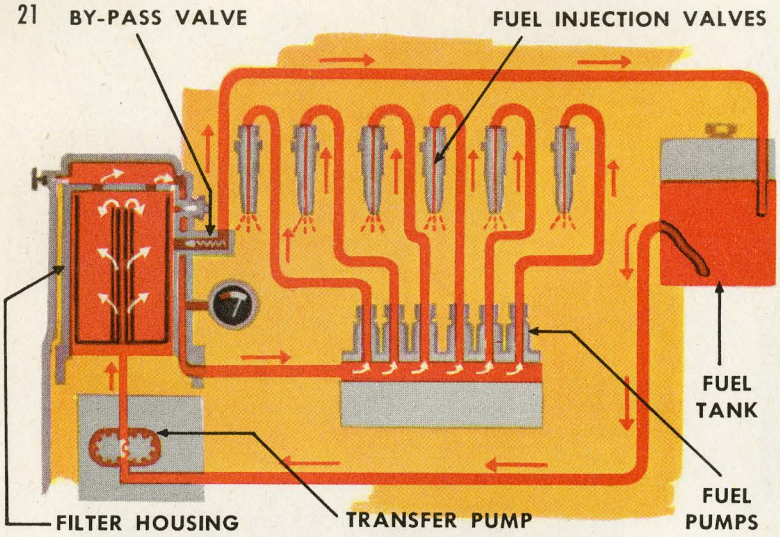

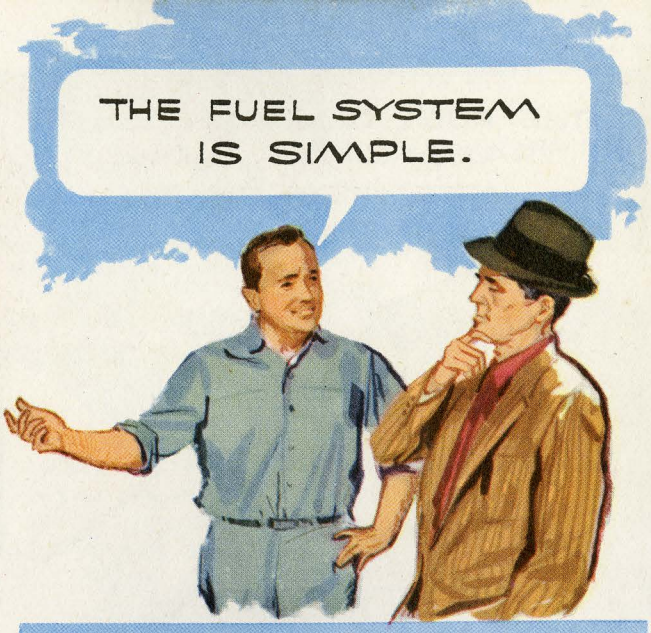

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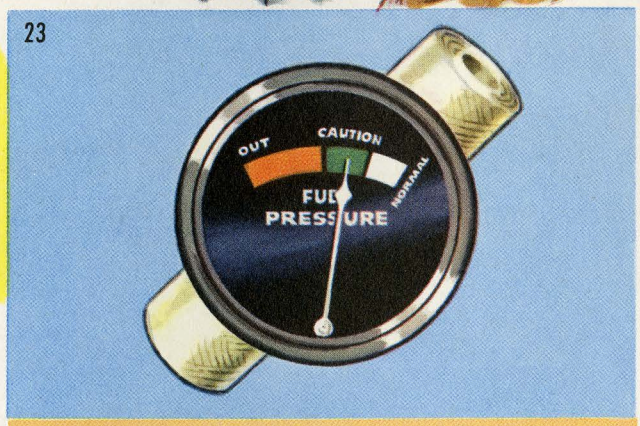
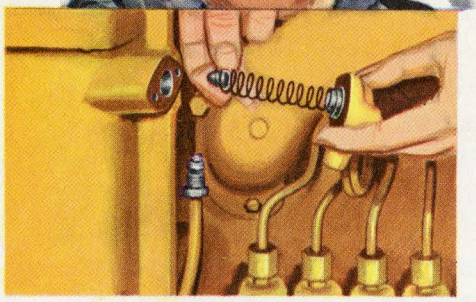


Filter Elements. Check fuel pressure gauge. Gradual lowering of pressure means clogged filters. Replace elements when necessary.



24

A sudden reduction of fuel pressure usually means there is dirt on the by-pass valve seat. So remove and clean the by-pass assembly.

25

26

Fuel Pumps. If the exhaust is clear, the engine lacks power and is hard to start, have your dealer service-man check the pumps.

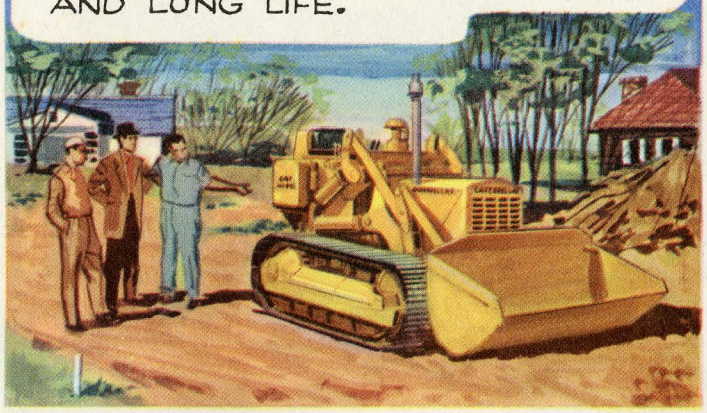
Fuel Valves. When the exhaust shows intermittent puffs of smoke and the engine is running irregularly—check the injection valves.

If an injection valve is sticking so that solid fuel is injected, the engine will knock severely. The sticking valve can be detected by loosening one fuel line at a time.

27

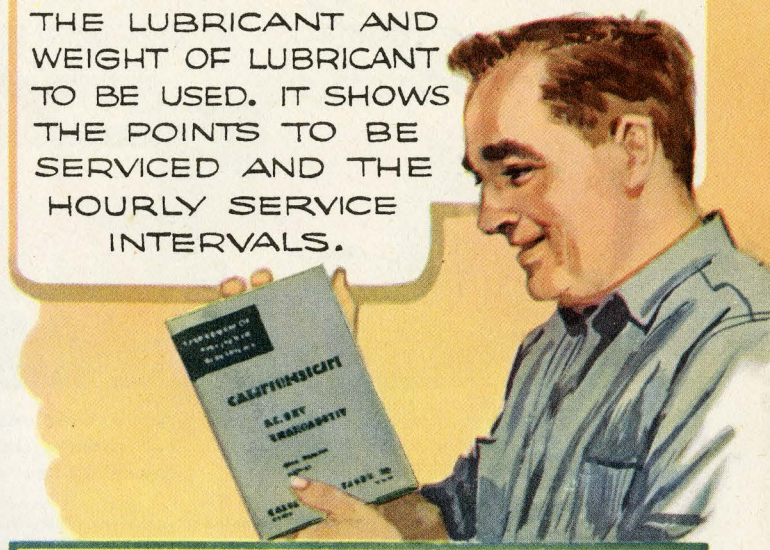
28

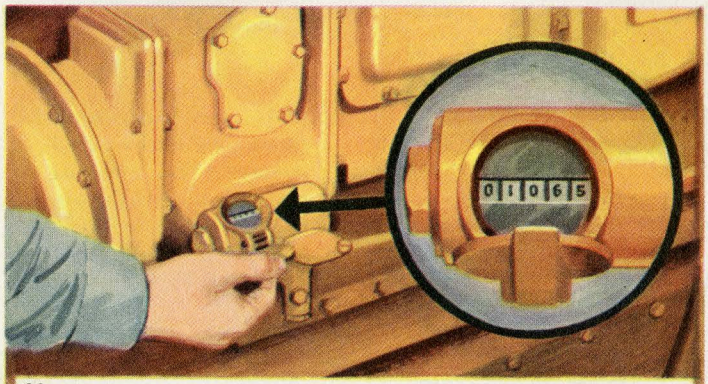
LET'S TAKE A LOOK AT LUBRICATION. PROPER SELECTION OF LUBRICANT WILL ADD MUCH TO ENGINE PERFORMANCE, ECONOMY AND LONG LIFE.



29

YOUR OPERATION AND MAINTENANCE INSTRUCTIONS SPECIFY THE LUBRICANT AND WEIGHT OF LUBRICANT TO BE USED. IT SHOWS THE POINTS TO BE SERVICED AND THE HOURLY SERVICE INTERVALS.



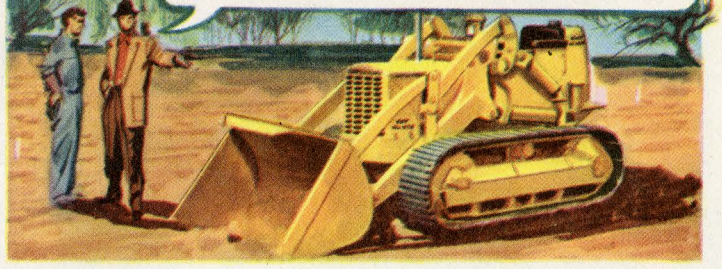


30

Check the service meter reading to determine the lubrication time for all parts. The service meter is geared to the engine, and when the crankshaft turns as many revolutions as are made in an hour at normal operating speed, the dial advances one number. It does not record "clock" hours.

31 AN ADDITIVE-TYPE LUBRICATING OIL SHOULD ALWAYS BE USED IN YOUR ENGINE. RECOMMENDED LUBE OIL IS SUPERIOR LUBRICANT, SERIES 3. OIL SHOULD BE CHANGED AT INTERVALS OF 125 TO 250 HRS. DEPENDING UPON THE DUST IN THE AIR OR SULPHUR CONTENT OF YOUR FUEL.

BUT I NOTICE ADDITIVE OILS BECOME DARK DURING ENGINE OPERATION.

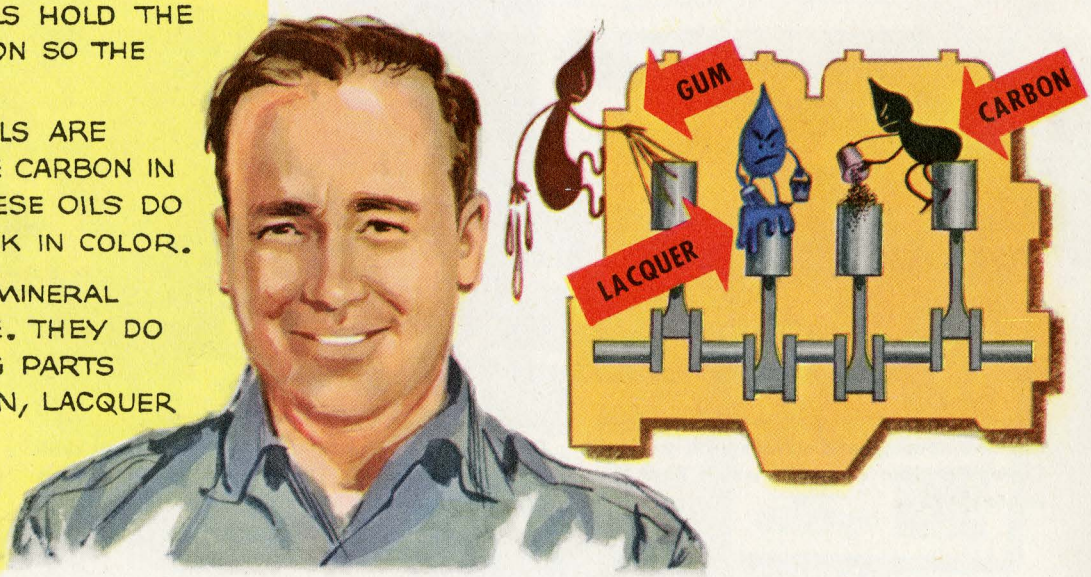


32

DARKENED OILS SHOULDN'T GIVE YOU CONCERN. ADDITIVE OILS HOLD THE CARBON IN SUSPENSION SO THE OIL LOOKS DARK.

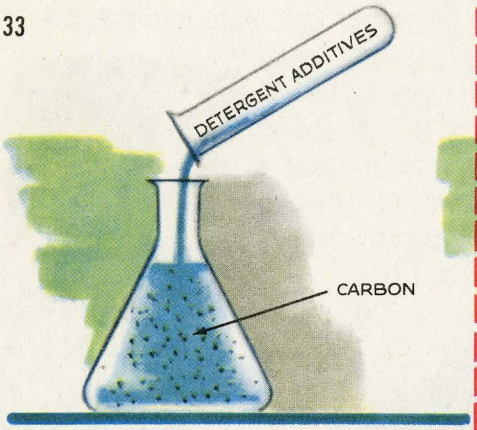
STRAIGHT MINERAL OILS ARE UNABLE TO HOLD THE CARBON IN SUSPENSION...SO THESE OILS DO NOT APPEAR SO DARK IN COLOR.

DON'T USE STRAIGHT MINERAL OILS IN YOUR ENGINE. THEY DO NOT KEEP WORKING PARTS FREE FROM CARBON, LACQUER AND GUMS.



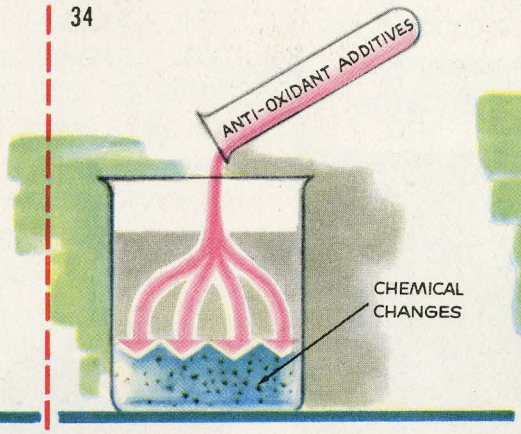
ADDITIVES ARE USED TO IMPROVE THE PROPERTIES OF STRAIGHT MINERAL OILS.

33



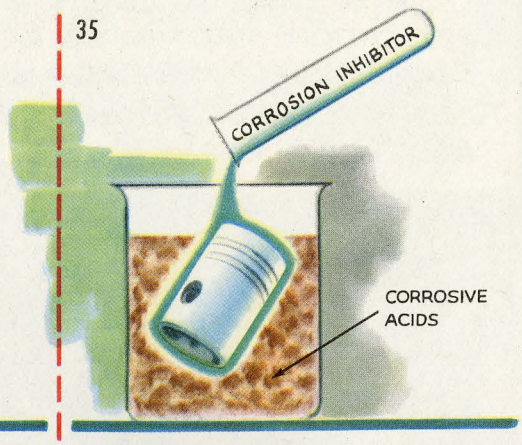
Detergent additives keep engine parts clean by holding undesirable products in suspension in the oil.

34



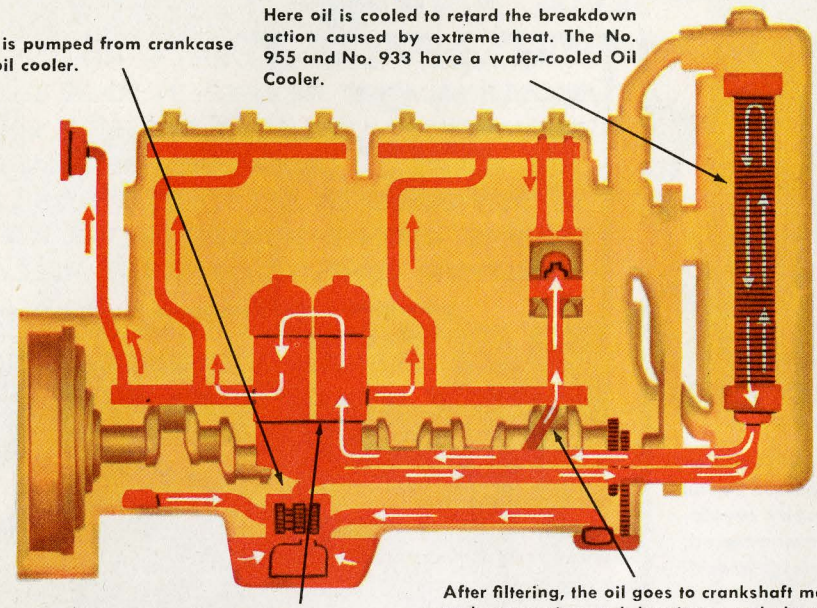
Anti-oxidant additives resist chemical changes in the oil—changes caused by heat and oxygen.

35



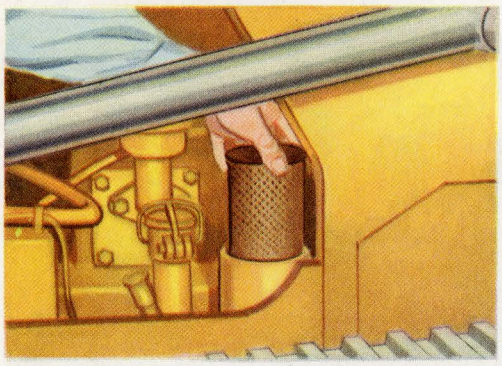
Corrosion-Inhibitors protect engine parts from corrosive acids—the result of oil breakdown.

36



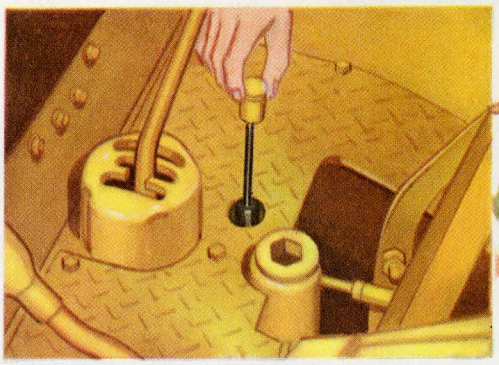
Engine oil should be changed as recommended. This depends upon the dust in the air, the type of oil, the filters used, and the sulphur content of your fuel.

37A



When you change the oil, be sure to clean the filter housing and replace with original Caterpillar filter elements, which filter the entire oil flow.

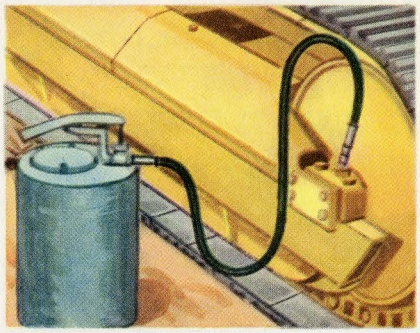
37B



Check the transmission oil level every 125 hr. Drain the oil, wash the compartment and refill it every 1000 hours. Clean the collected particles from the magnetic drain plugs.

LUBRICATE FRONT IDLERS AND TRACK ROLLERS EVERY 125 HOURS, OR IF OPERATING IN DEEP MUD OR WATER, LUBRICATE EVERY 10 HOURS.

39



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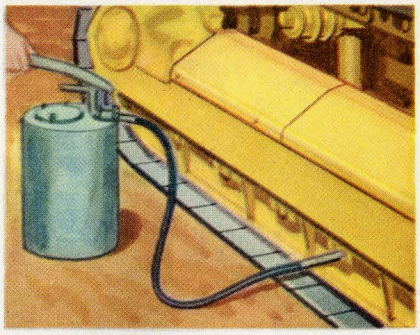

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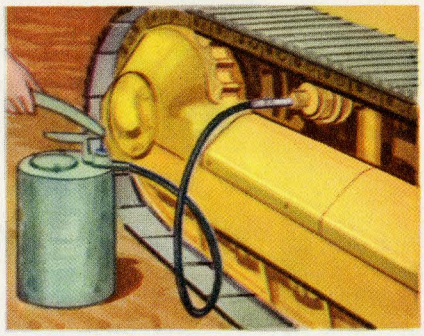

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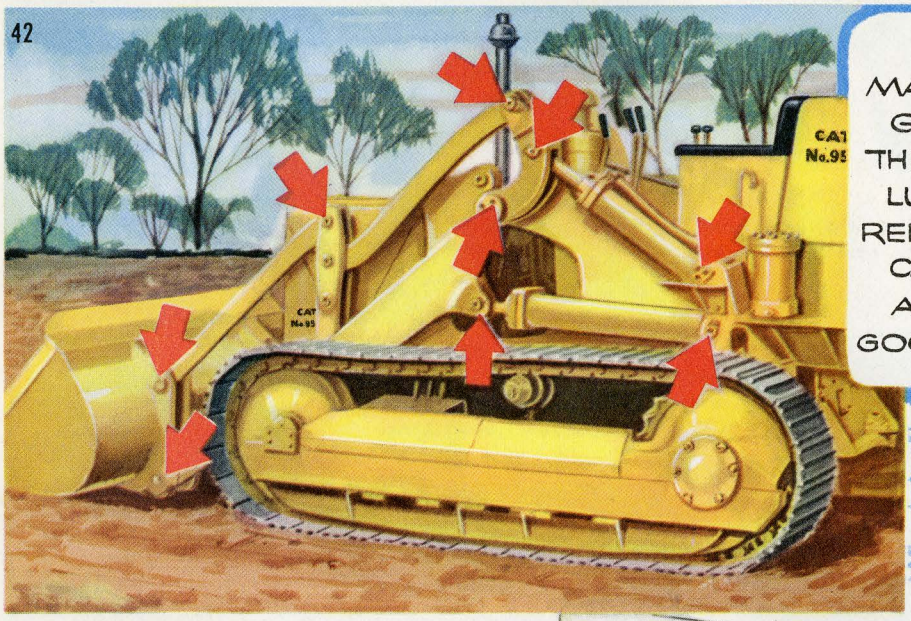
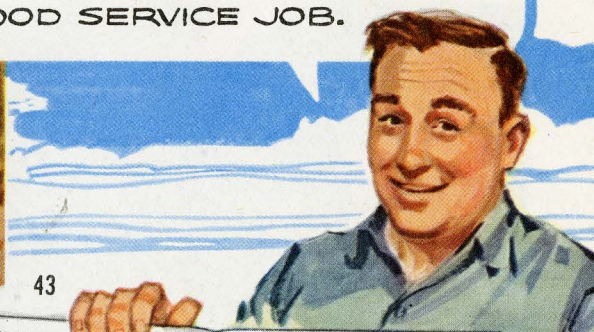


YOUR OPERATION AND MAINTENANCE INSTRUCTIONS GO INTO DETAIL REGARDING THE SERVICE PERIODS AND LUBRICANTS TO BE USED. REFER TO THEM WHEN LUBRICATING YOUR TRAXCAVATORS AND YOU'LL BE DOING A GOOD SERVICE JOB.



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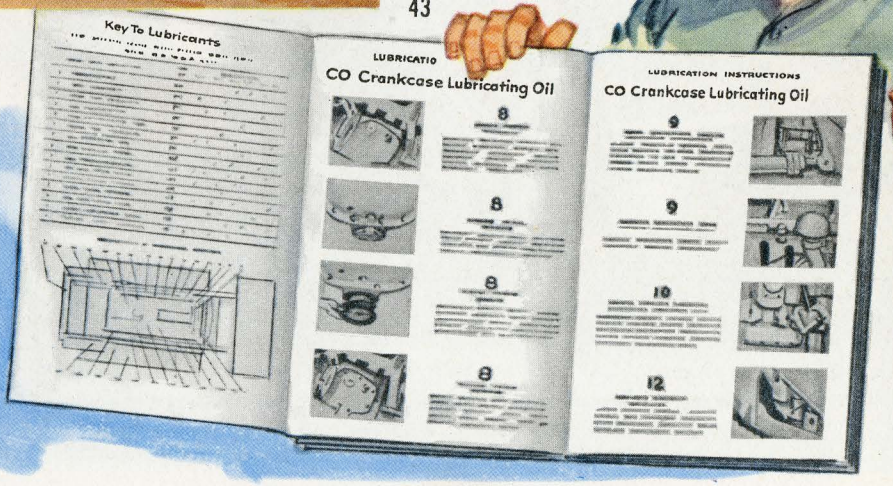
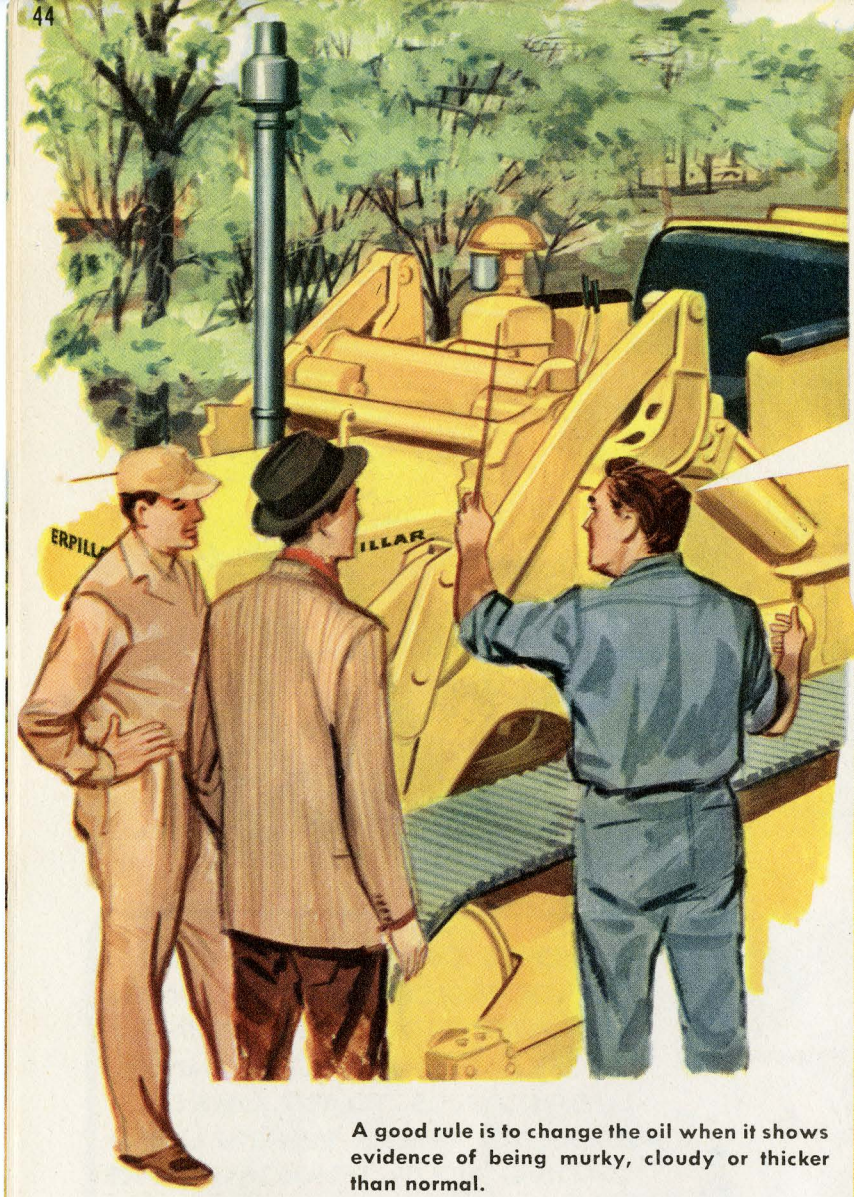
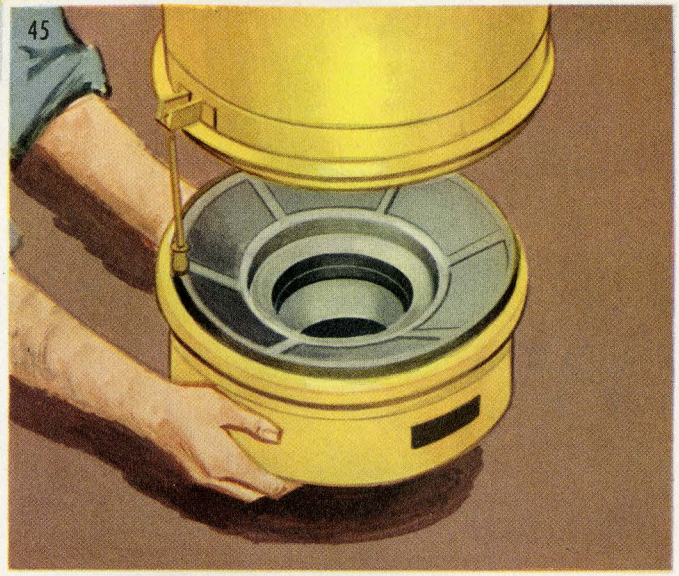


Lubricate the bucket control linkage pivot points, hydraulic cylinder pivot points and lift arm pivot points as recommended by your Operation and Maintenance Instructions.

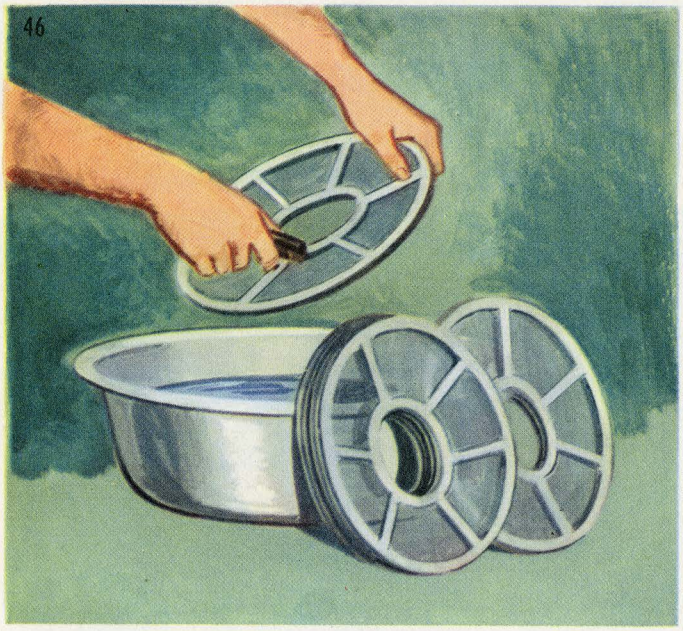


ALSO CHECK THE AIR SYSTEM. IT'S ONE OF THE MOST IMPORTANT PARTS OF YOUR TRAXCAVATOR. THE AIR CLEANER BREATHES IN THOUSANDS OF CUBIC FEET OF AIR EVERY HOUR. A PROPERLY SERVICED AIR CLEANER FILTERS ABRASIVE MATERIALS FROM THE AIR . . . THUS ASSURING LONG LIFE FOR VITAL PARTS.

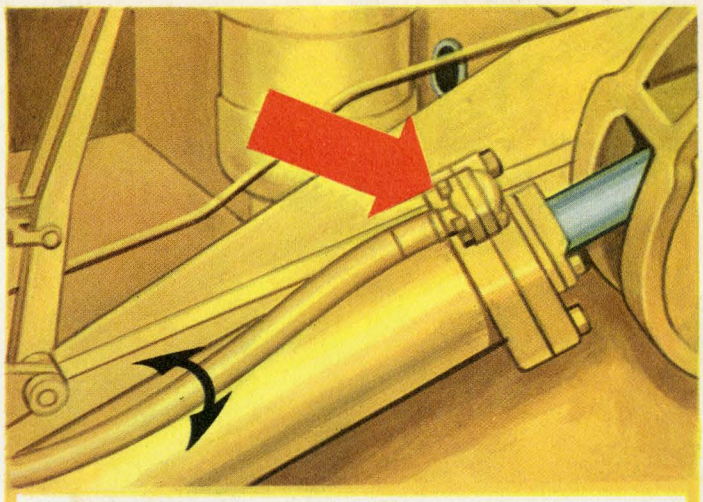
A good rule is to change the oil when it shows evidence of being murky, cloudy or thicker than normal.



At every air cleaner cup service period, every 10 to 60 operating hours depending upon operating conditions, wash the separable tray screens.



Empty the pre-cleaner jar when it gets ¾ full. Inspect the fins in the pre-cleaner regularly and when dirty remove the entire pre-cleaner and wash it in water.



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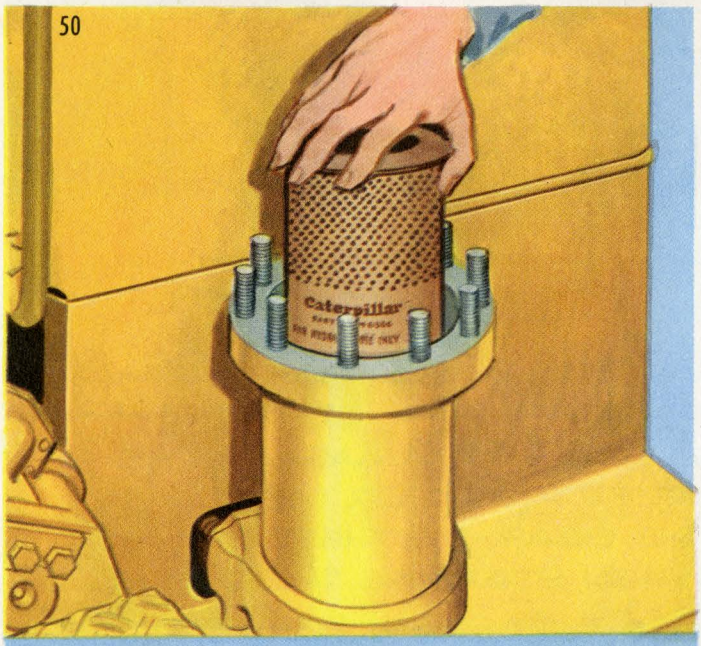
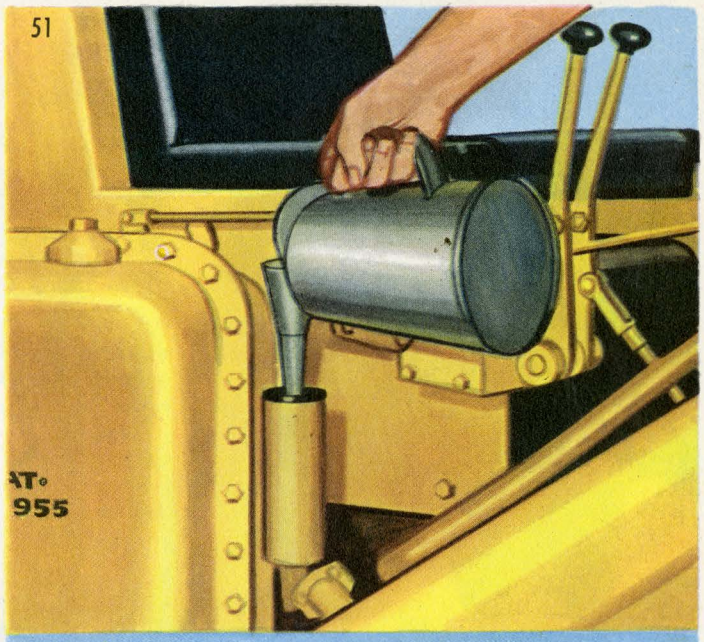
Sometimes the hose rubs against the machine causing excessive wear. You can eliminate this by loosening the hose flange, and turning the hose several degrees.



Change filters and drain oil from the system as recommended.

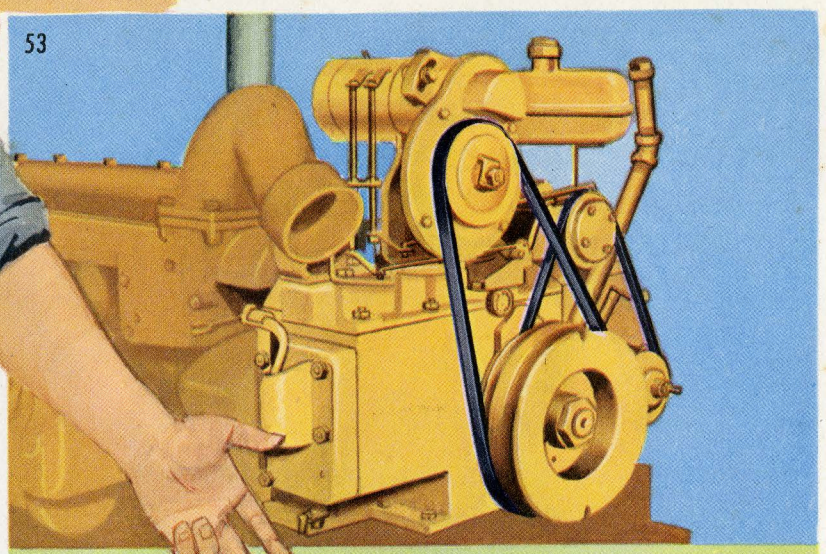


And CLEANLINESS should be observed when changing and filling.

In temperatures below freezing, extra precaution should be taken to insure adequate pump lubrication. Before starting the engine, remove the filler cap on the hydraulic tank to relieve any vacuum which might be in the tank. Don't allow engine to run over half-speed until oil in the hydraulic system has had a chance to warm.

CONSIDER THESE POINTS WHEN STARTING THE TRAXCAVATOR.

53



Starting engines spend all their lives starting and stopping. If trouble-free operation is to be expected, they should be started and stopped correctly.

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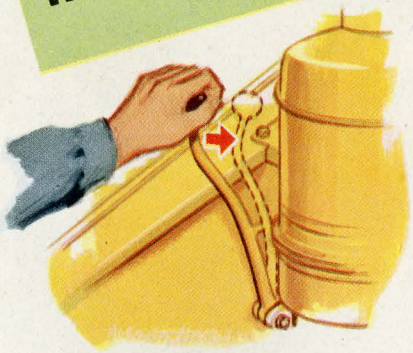
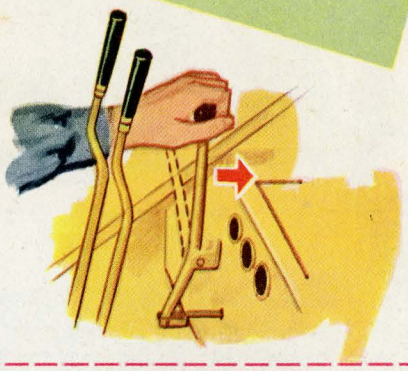


Move the compression release lever to the START position.

Move the governor control lever to shut-off position as shown in the sketch.



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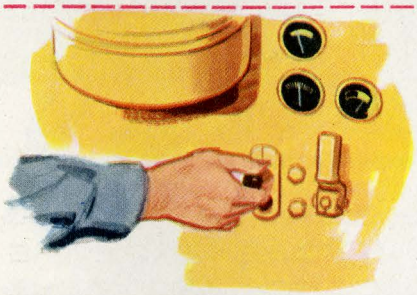
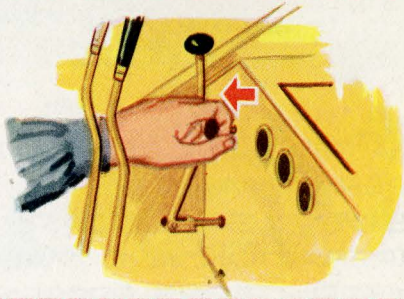


Follow carefully the procedures for starting the gasoline starting engine as outlined in your Operation and Maintenance Instructions.

Once the starting engine is operating see that it's running at high idle speed.



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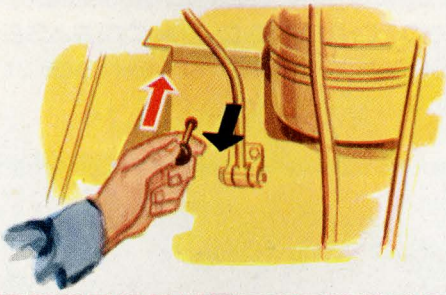
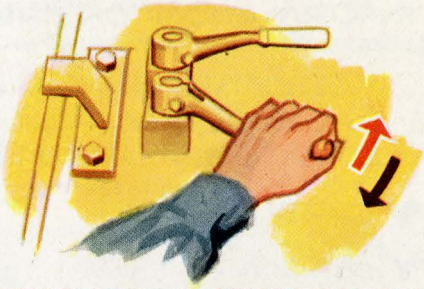


Position the starter pinion brake to stop the starter pinion from rotating (red arrow). Hold it in the "brake applied" position for 5 seconds.

Then position the lever to engage the starter pinion with the flywheel ring gear and the clutch (black arrow).



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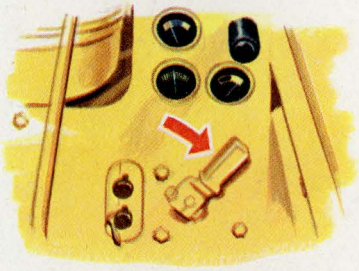
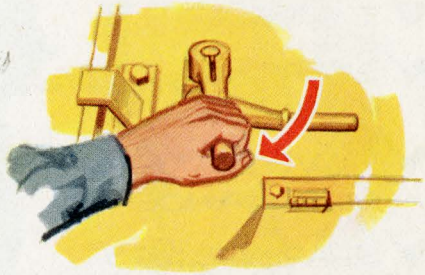


Move compression release lever to the RUN position, and allow starting engine to crank diesel engine against compression for a few minutes. Actual experience will determine the length of time necessary to crank the diesel engine to warm it sufficiently to assure easy starting.



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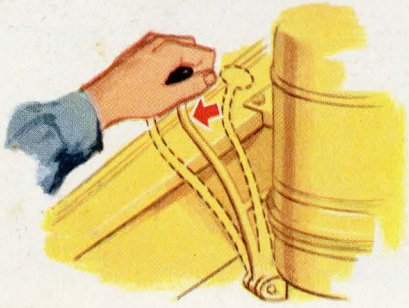
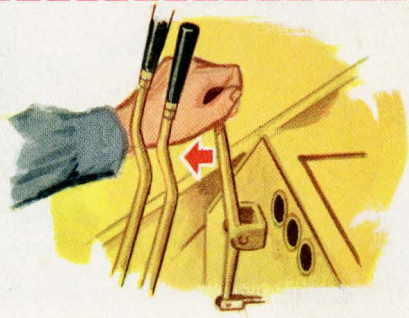


Move the governor control lever to about half engine speed.

When the diesel engine begins to run, the starting engine clutch and starter pinion automatically disengage.



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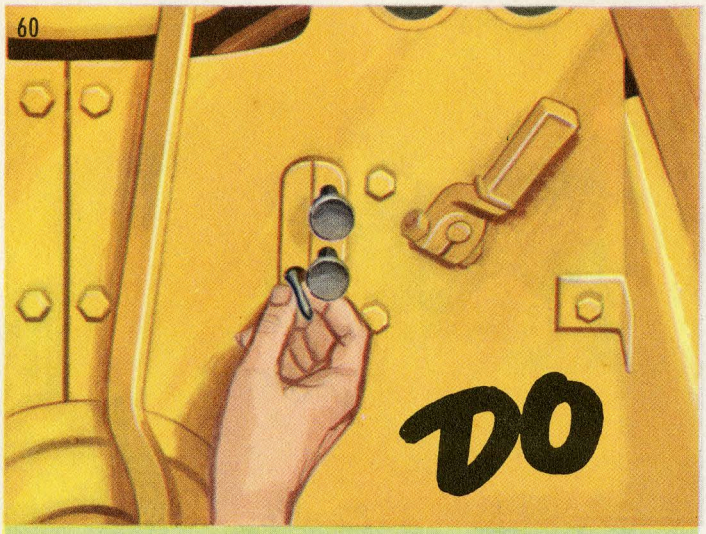
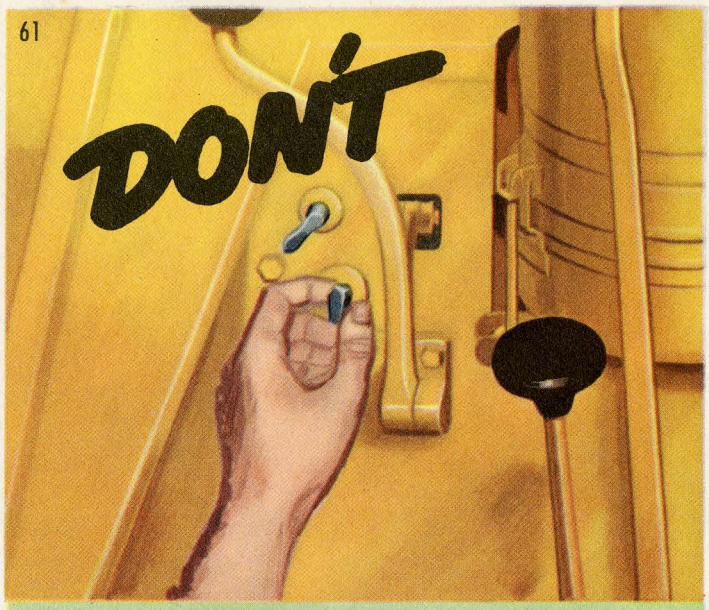


It is important to stop the starting engine by turning off its fuel. This drains the carburetor thus prolonging float valve life. It also stops crankcase dilution.

61



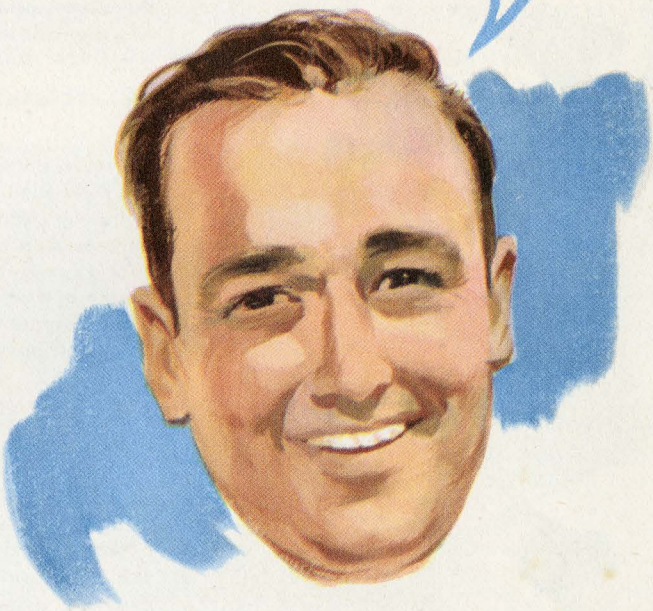
Do not turn off the ignition switch to stop the starting engine.

TO GET GOOD STARTING ENGINE PERFORMANCE YOU SHOULD GIVE IT SOME CARE. YOUR OPERATION AND MAINTENANCE INSTRUCTIONS PRESENT DETAILED INFORMATION ON THESE POINTS.

62

63

AFTER THE DIESEL ENGINE HAS WARMED UP, DISENGAGE THE FLYWHEEL CLUTCH AND MOVE GEAR SELECTOR LEVER INTO THE SPEED DESIRED. INCREASE ENGINE SPEED AND ENGAGE THE FLYWHEEL CLUTCH.



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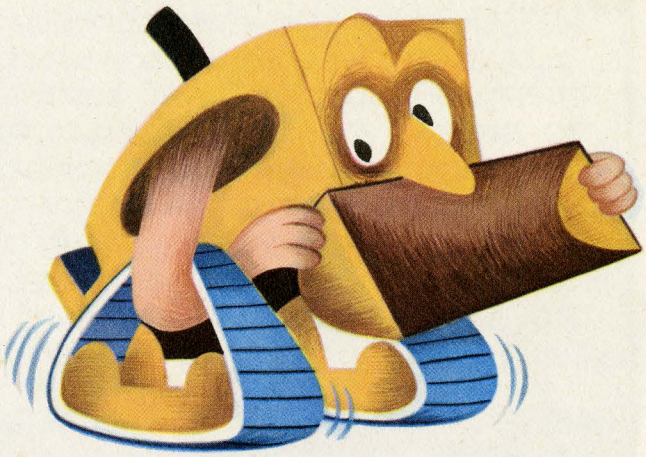
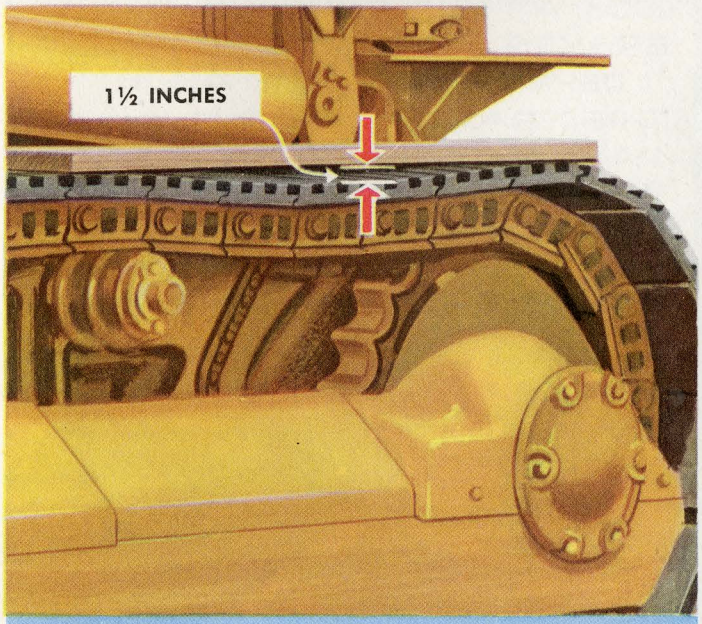


Loose tracks cause excessive wear to the pins and bushings.

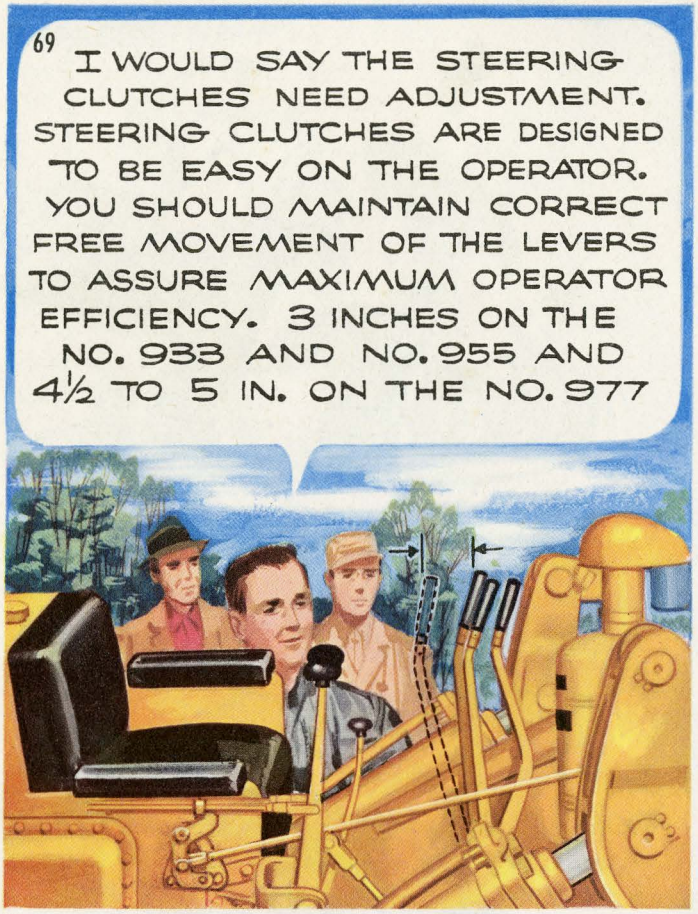
66

Tight tracks place a load between the pins and bushings, sprockets and idlers.

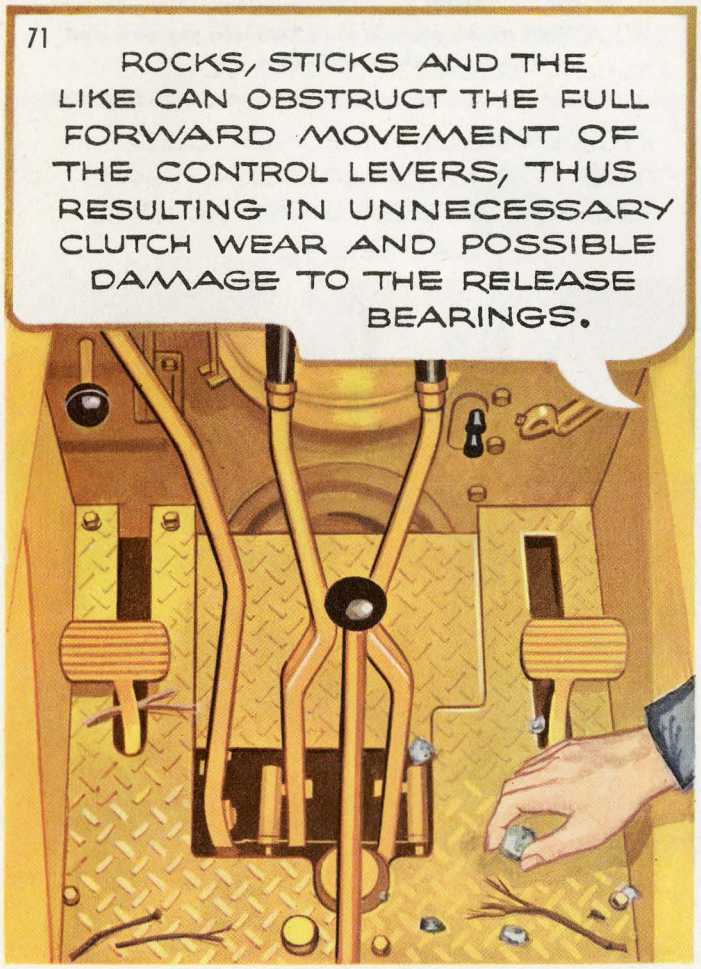


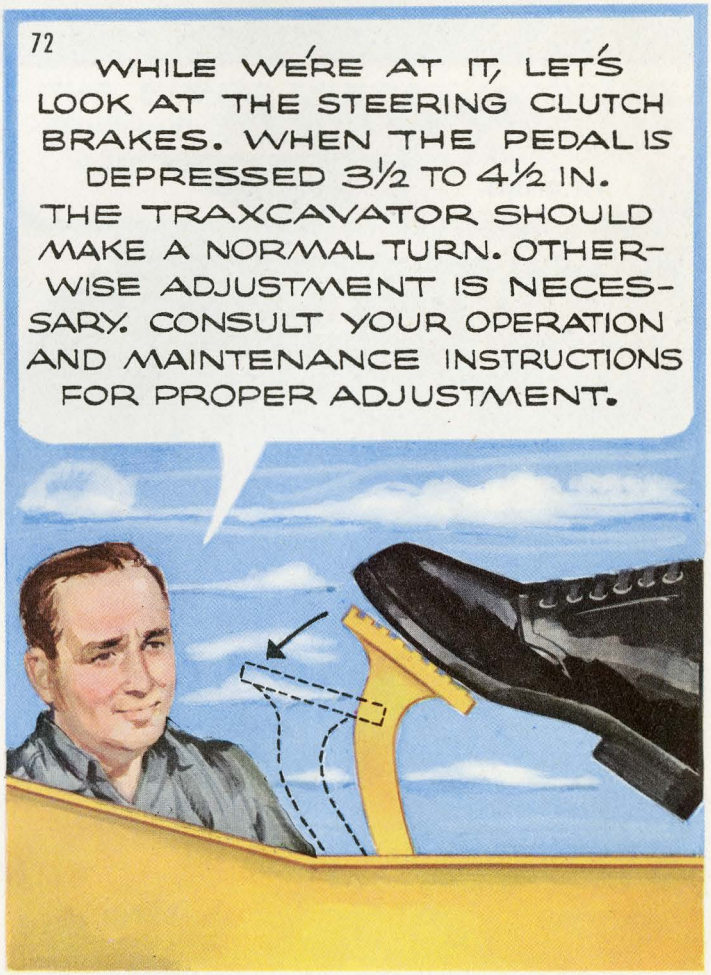
67

Properly adjusted tracks will have 1½ inches of slack. Refer to your Operation and Maintenance Instructions for complete adjustment details.

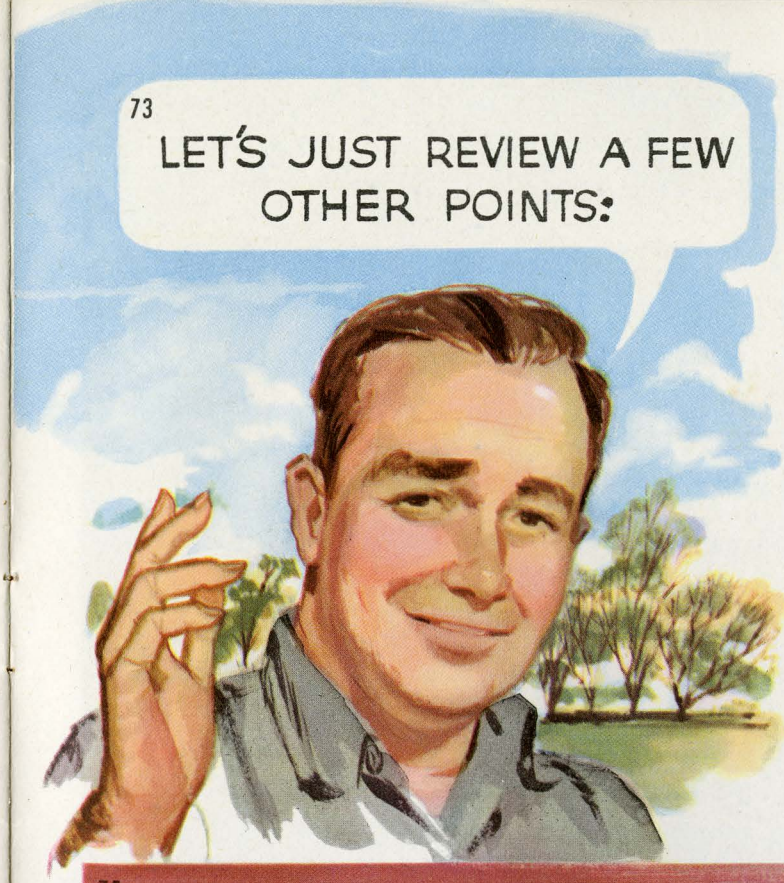


Turn the adjusting screw until the correct free movement is obtained. Then tighten the locknut.



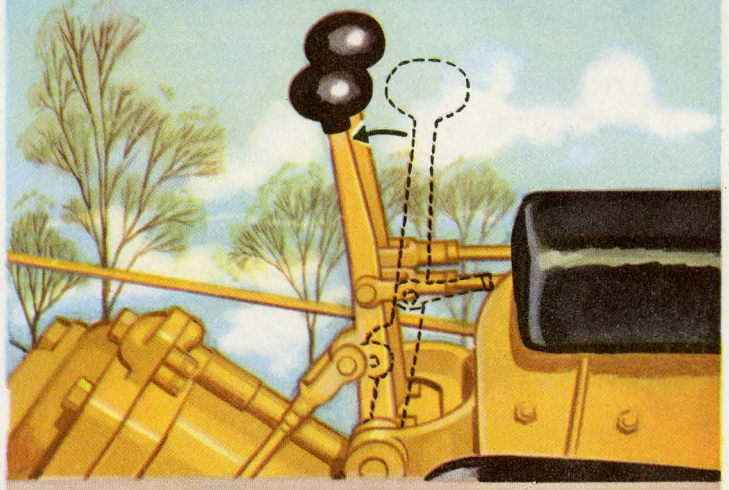


73



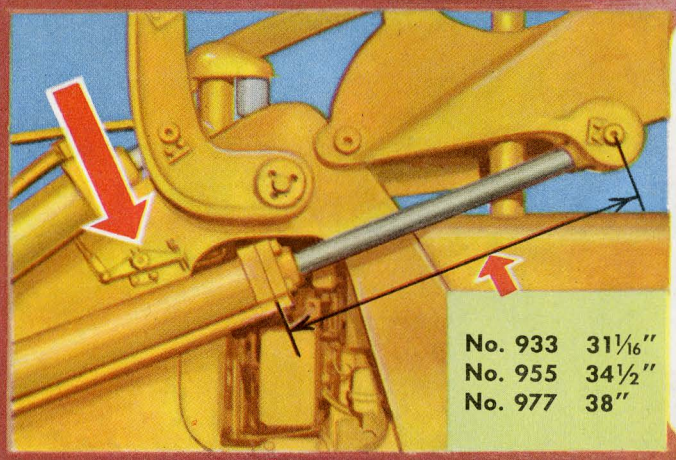
74

LOCKOUT-KICKOUT MECHANISM



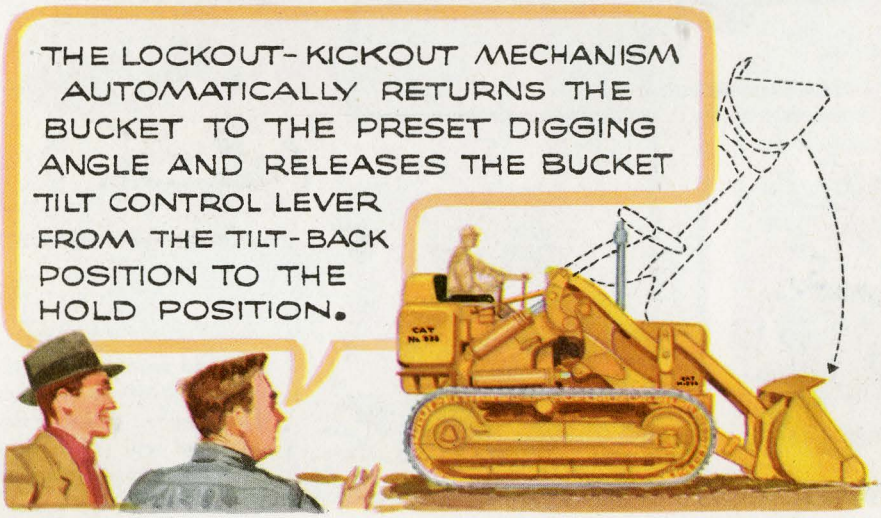
This is designed to throw the bucket lift lever into the hold position after the bucket has automatically risen to its maximum height.

75



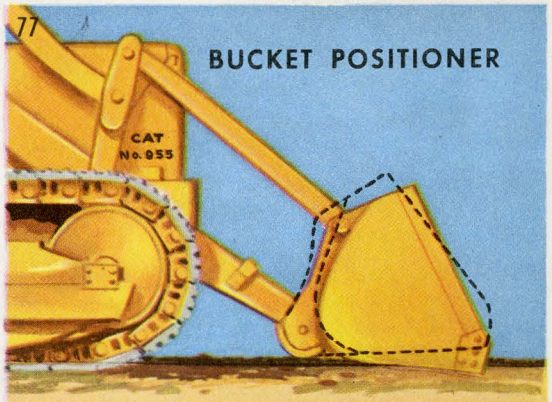
TO ASSURE MAXIMUM OPERATING EFFICIENCY AND MINIMUM WEAR ON THE CYLINDERS, PROPER DISTANCE SHOULD BE MAINTAINED BETWEEN THESE POINTS. YOUR OPERATION AND MAINTENANCE INSTRUCTIONS WILL SHOW YOU HOW TO MAKE THIS ADJUSTMENT ON THE SET SCREW MECHANISM.

76



77

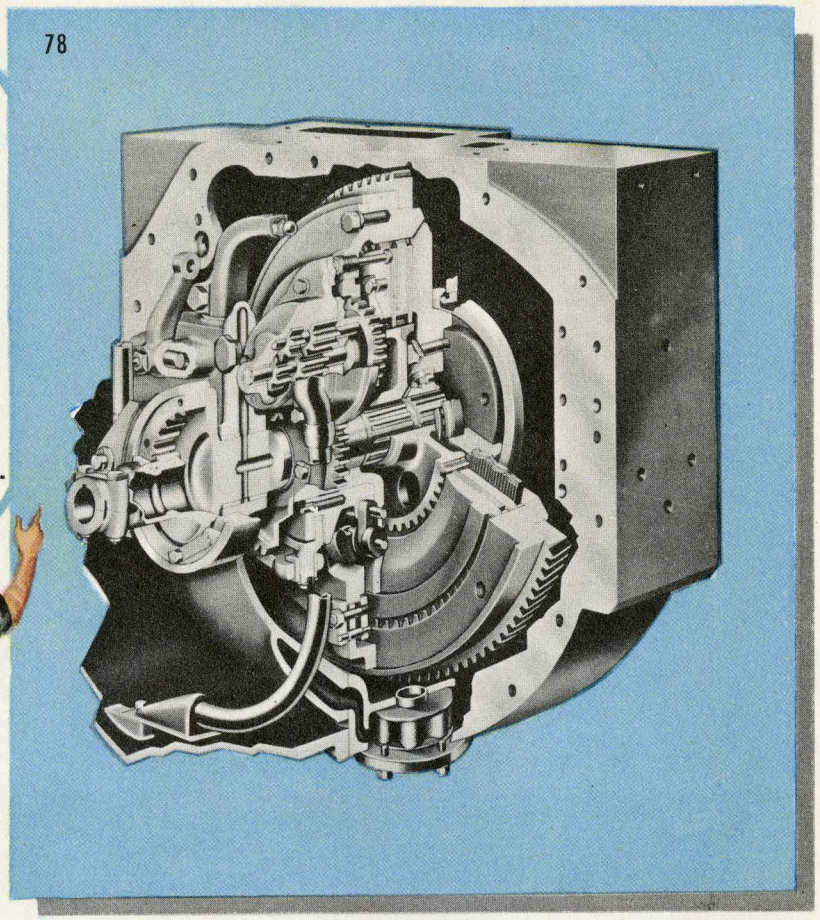
BUCKET POSITIONER



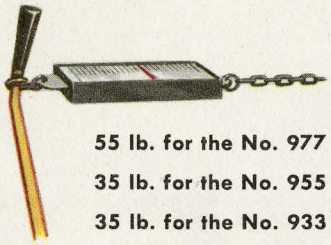
By following your Operation and Maintenance Instructions, you can preset the bucket anywhere from a 5-degree digging angle to a 3-degree tilt-back angle.

OIL CLUTCH

THIS CATERPILLAR EXCLUSIVE ON ALL TRAXCAVATORS REDUCES CLUTCH ADJUSTMENT TO AN ABSOLUTE MINIMUM. A FILM OF OIL PROTECTS THE CLUTCH PLATES UNTIL THE LAST FEW REVOLUTIONS BEFORE ENGAGEMENT. WHEN ADJUSTMENT IS NECESSARY, CONSULT YOUR OPERATION AND MAINTENANCE INSTRUCTIONS.



Proper clutch adjustment will give a clutch lever pull of:



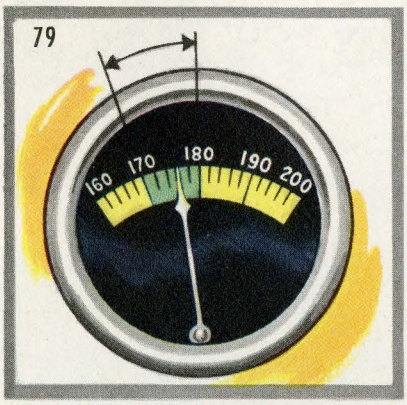
55 lb. for the No. 977

35 lb. for the No. 955

35 lb. for the No. 933

Measurement is made on a spring scale placed at the bottom of the handle with the engine stopped and when the clutch is cold.

NOW LET US TAKE A LOOK AT THE COOLING SYSTEM...



Your Traxcavator should operate between 170 degrees and 180 degrees Fahrenheit.

Overheating can usually be traced to several causes:

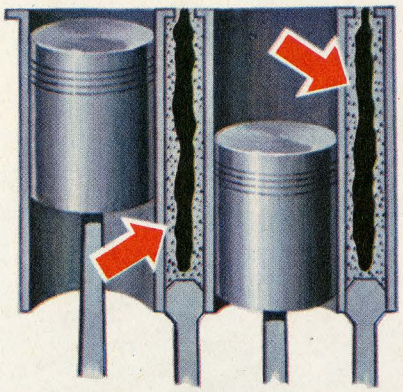
Insufficient amount of water in the cooling system itself.

Loose or broken fan belt, frozen radiator, loose pump impeller, or broken shaft.

Obstructions in the radiator. Damaged core from careless cleaning. Bent fins on the radiator.

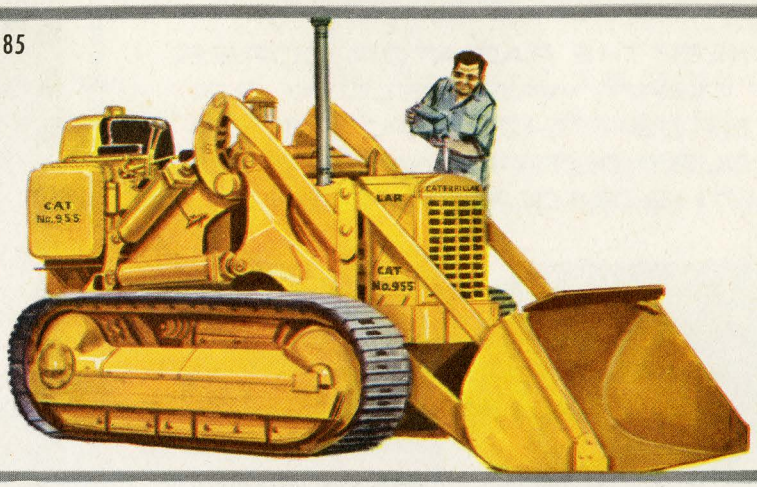
Internal trouble with the engine itself. A leaking head gasket or pre-chamber seal will cause combustion gases to displace the water.

84



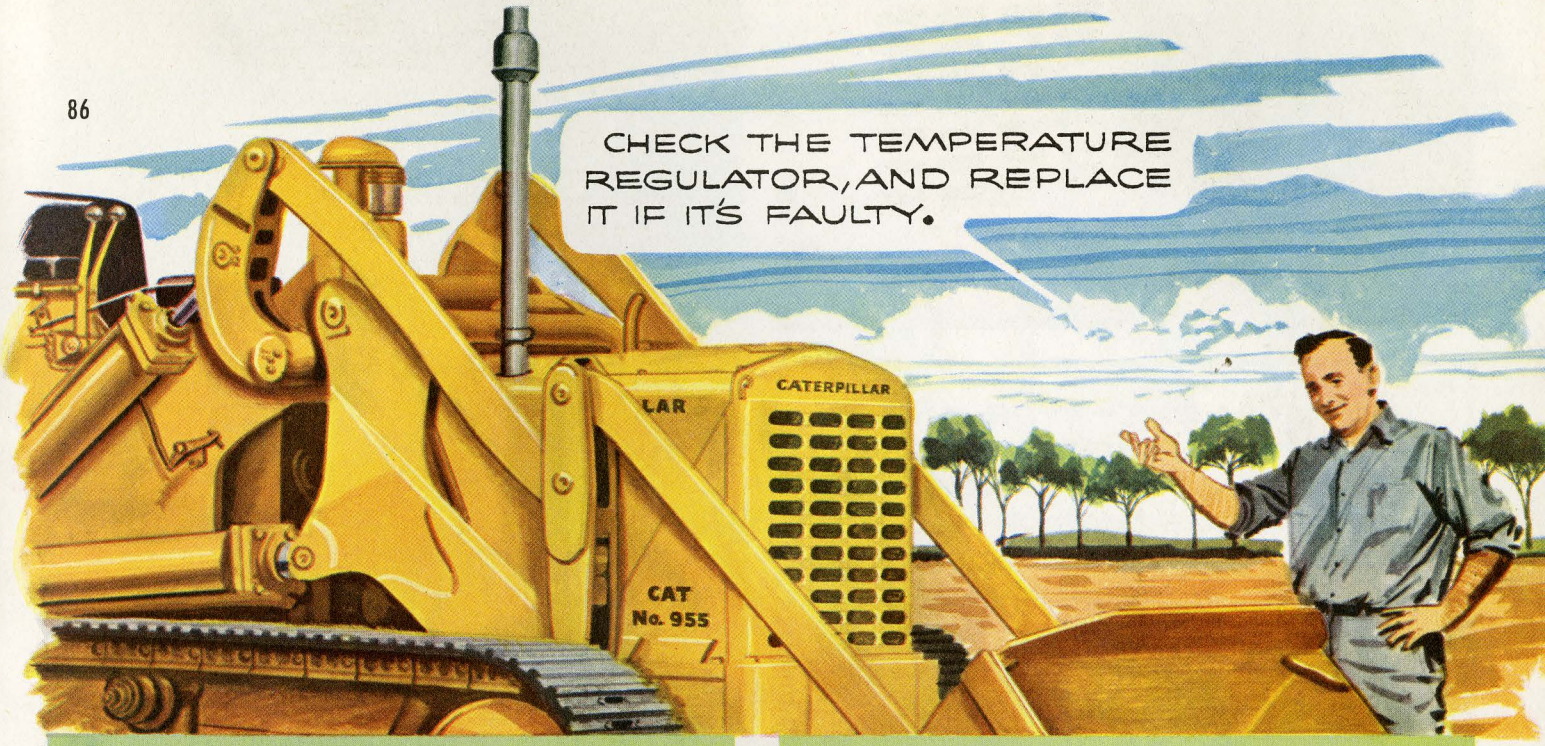
When mineral deposits coat the metal walls of your engine, the heat cannot get through to be carried off by the water.

85

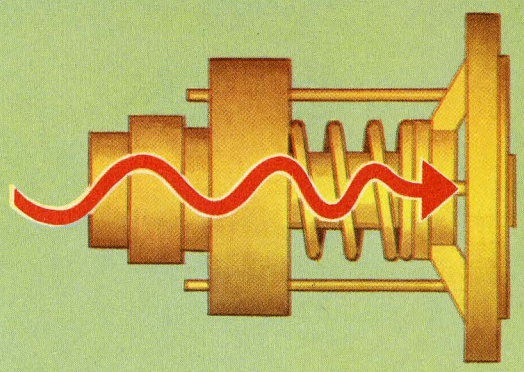


Use soft water to prevent formation of scale and rust. As an added preventive measure, use Caterpillar Rust Inhibitor.

86

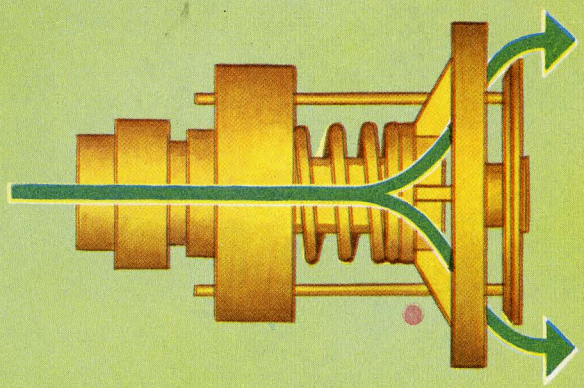


87

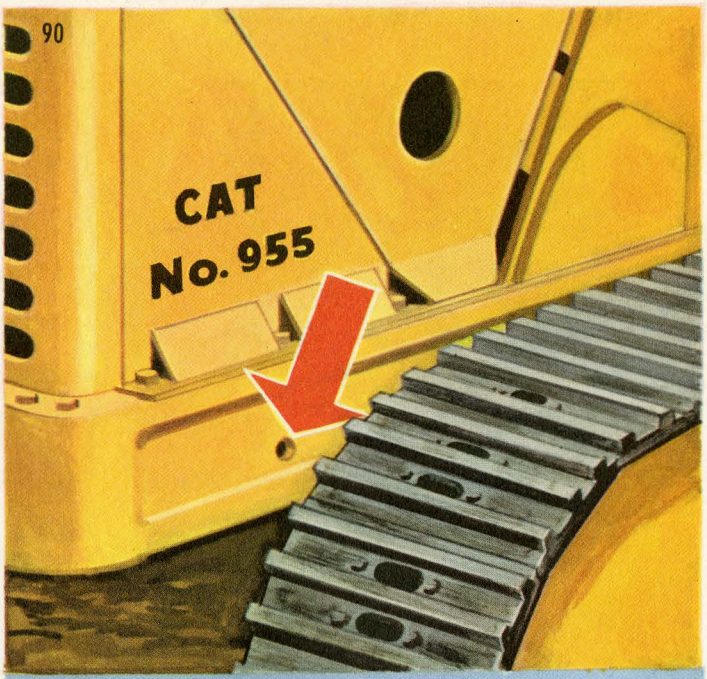


It should restrict the flow of water to the radiator when the engine is cool.

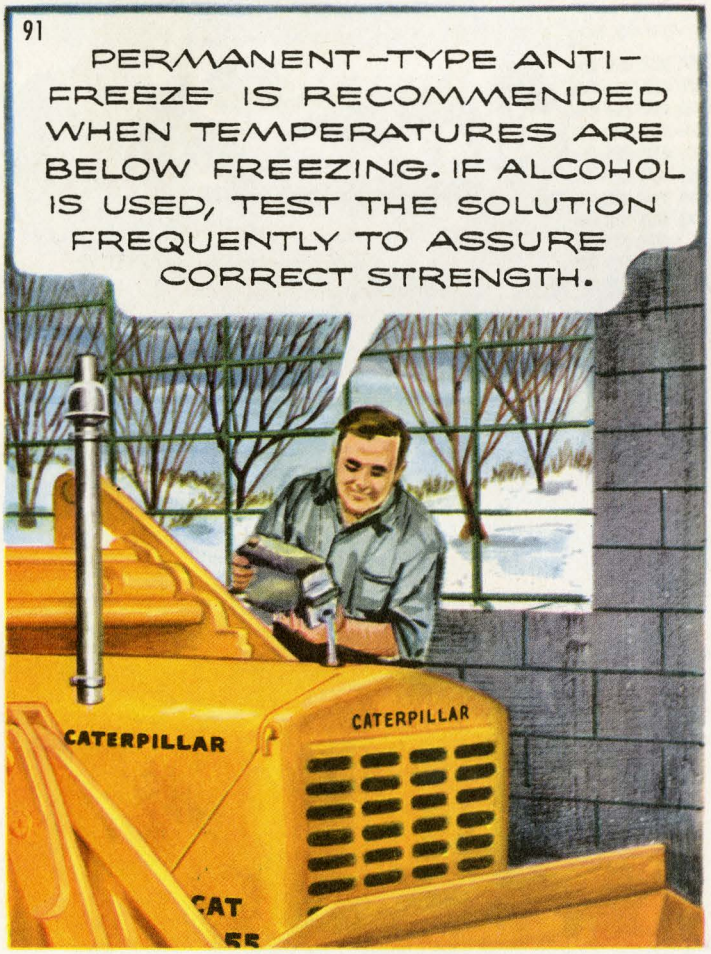
88

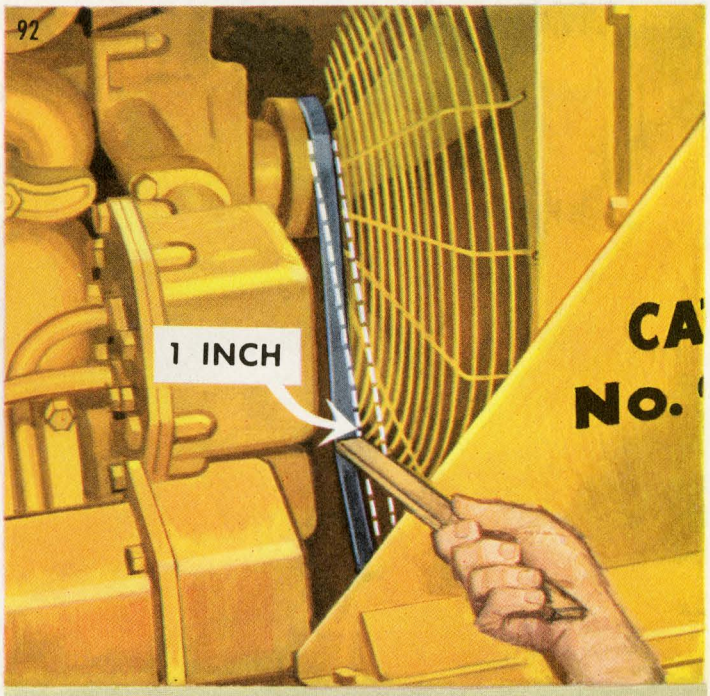


And it should permit passage of water to the radiator when the engine is hot.



Drain and flush the cooling system occasionally. Draining should be at the end of the day's run when foreign material is in suspension.





Keep fan belt at proper tension. When correctly adjusted, you should be able to push the belt in about an inch.

STOPPING THE TRAXCAVATOR:

Disengage the flywheel clutch and move the governor control lever to reduce engine speed. On the No. 955 and No. 933, shift the transmission gears into neutral, and engage the flywheel clutch. Lower the bucket to the ground.

On the No. 977, prior to engaging the flywheel clutch, the forward-reverse lever must be in either the forward or reverse position. For continuous "stationary" operation, see your Operation and Maintenance Instructions.

STOPPING THE DIESEL:

After the normal load is removed from the engine, allow it to idle five minutes with the governor control lever at half engine speed position before stopping.

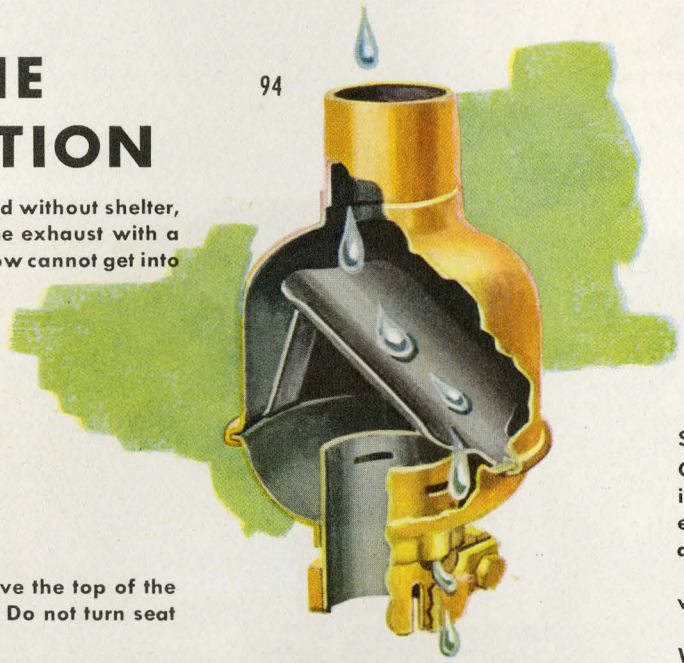
Move the governor control lever to the extreme forward position. Leave the diesel fuel tank valve open.

93

MACHINE PROTECTION

If the machine must stand without shelter, provide the diesel engine exhaust with a rain trap, so rain and snow cannot get into the engine.

94



96

SOME COLD-WEATHER HINTS:

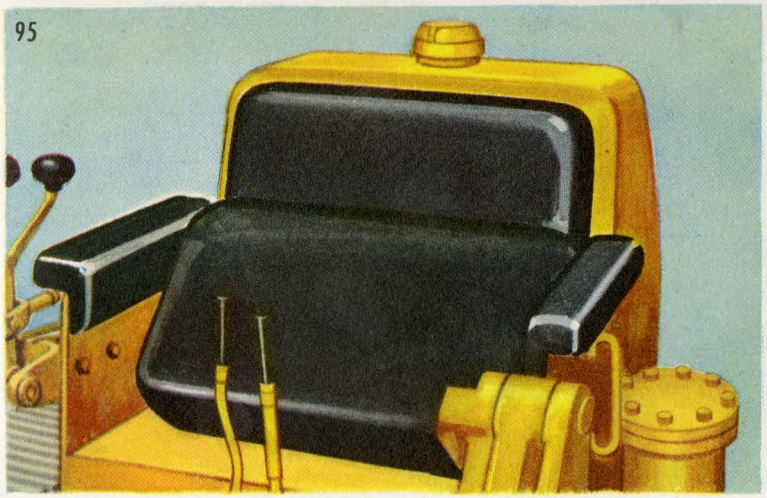
Ordinary cold weather will not cause difficulty in starting or loss of efficiency, if the starting engine and diesel are in good mechanical condition.

Use thinner lubricating oil during cold weather.

When starting in cold weather, allow the oil in the hydraulic system to warm before operating.

Tip seat cushion but leave the top of the seat facing the weather. Do not turn seat cushion over.

95



97

Protect your cooling system with permanent type anti-freeze.

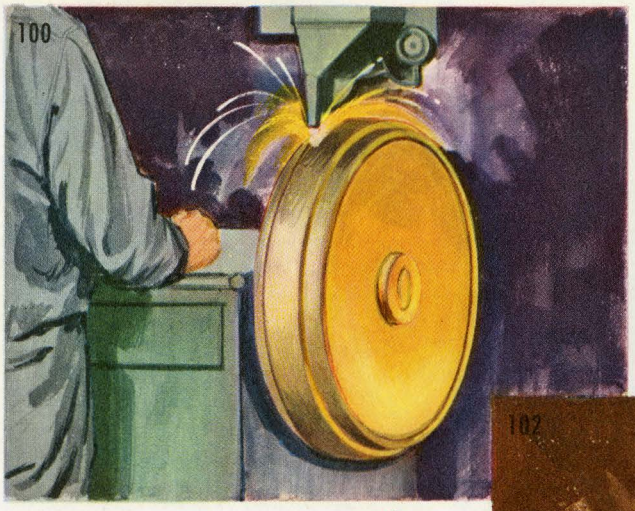
SOME LONG-LIFE HINTS

YOU CAN ADD MANY PROFITABLE HOURS ONTO YOUR TRAXCAVATOR BY REBUILDING WORN PARTS. HERE ARE A FEW EXAMPLES:

99

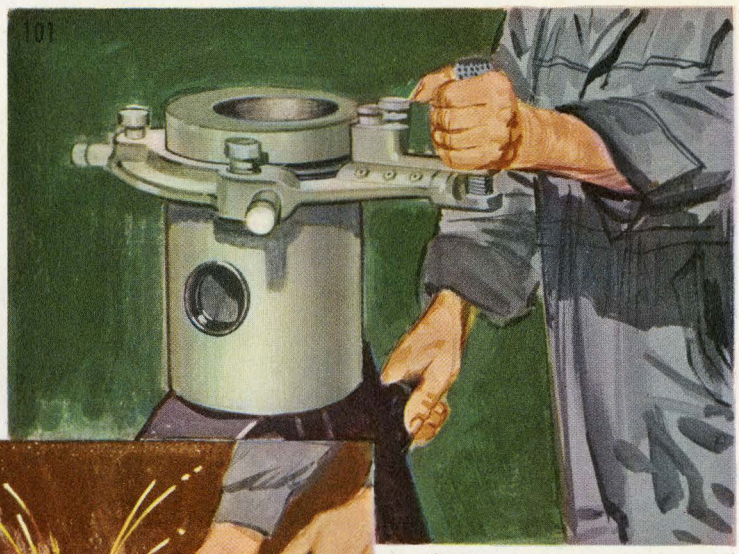
We are equipped to do this rebuilding for you using Cat original parts where necessary to maintain the consistent quality found in Caterpillar-built machines.

100



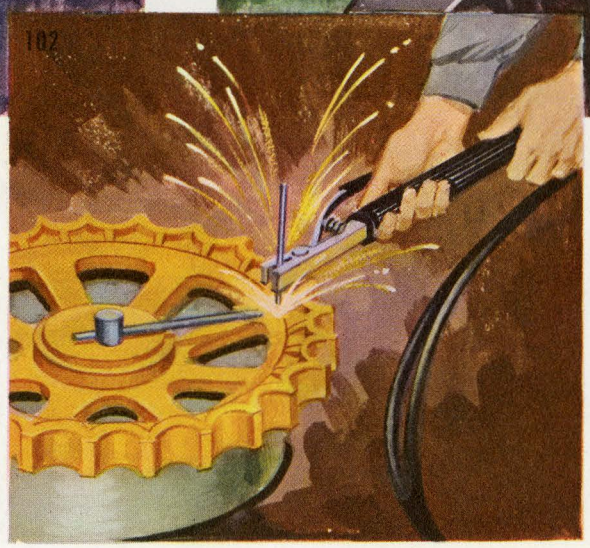
Idlers, rollers and track links and many other parts can be resurfaced by applying overlays of weld material.

101



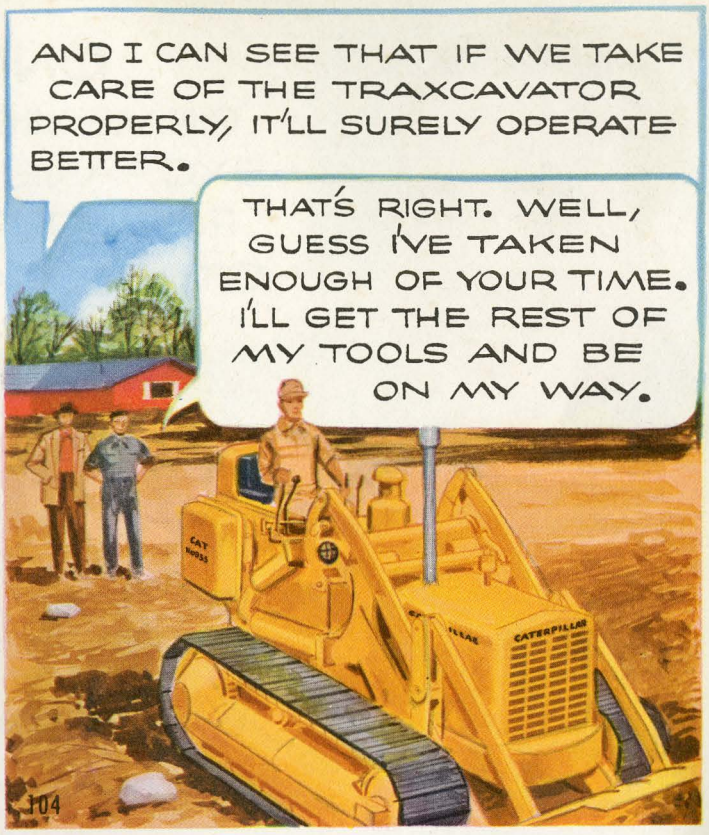
Worn pistons may be machined and wide top rings installed to lengthen the life of the piston.

102



Sprocket teeth can be rebuilt with welding rod or a completely new rim can be welded to the old hub for low-cost, long-life performance.

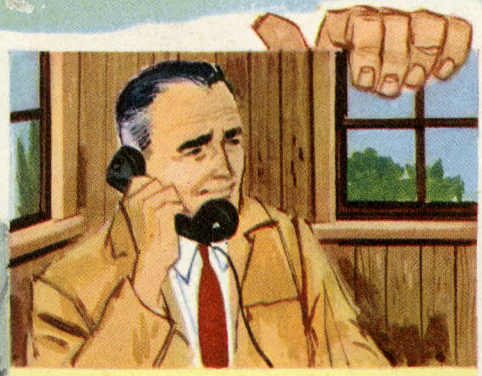
THESE ARE JUST A FEW OF THE SERVICES WE OFFER TO LOWER YOUR MAINTENANCE COSTS.
WELL, I CAN SEE RIGHT NOW THAT THERE ARE A LOT OF PLACES THAT WE CAN SAVE MONEY BY JUST REFERRING TO THE OPERATION AND MAINTENANCE INSTRUCTION BOOK A LITTLE MORE OFTEN.
103


AND I CAN SEE THAT IF WE TAKE CARE OF THE TRAXCAVATOR PROPERLY, IT'LL SURELY OPERATE BETTER.
THAT'S RIGHT. WELL, GUESS I'VE TAKEN ENOUGH OF YOUR TIME. I'LL GET THE REST OF MY TOOLS AND BE ON MY WAY.
CATERPILLAR
104

105
THANKS FOR THE HELP I CAN SEE WE HAVEN'T GIVEN THE EQUIPMENT THE CARE IT DESERVES. BUT THERE'S NO TIME LIKE THE PRESENT TO START.
CATERPILLAR
SERVICE
141731

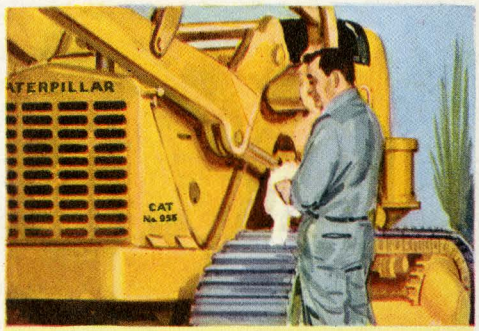
ONE FINAL POINT!

REMEMBER THE CAT PARTS EXCHANGE PROGRAM AVAILABLE FOR YOUR TRAXCAVATOR* AND OTHER CAT-BUILT EQUIPMENT.

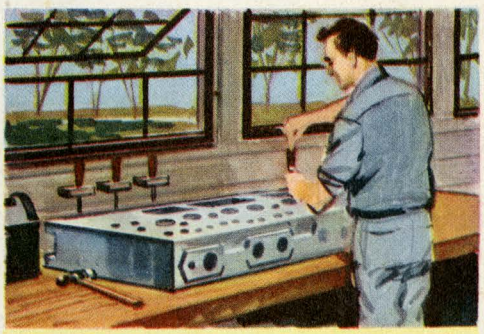


Phone us for the exchange assembly containing original CAT* parts.

In just a few hours you receive an assembly from our stock.



You install the exchange assembly. Return old assembly within 5 days.



An old assembly is rebuilt and put in inventory for the next customer.

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